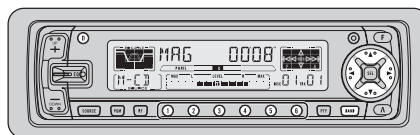


Service Manual

Pioneer

DEH-P700R/UC



ORDER NO.
CRT2373

MULTI-CD CONTROL HIGH POWER CD PLAYER WITH RDS TUNER

DEH-P700R

UC

DEH-P7000R

UC

MULTI-CD CONTROL HIGH POWER CD PLAYER WITH FM/AM TUNER

DEH-P7050

ES

COMPACT
disc
DIGITAL AUDIO

- See the separate manual CX-916(CRT2300) for the CD mechanism description, disassembly and circuit description.
- The CD mechanism employed in this model is one of S8 series.
- This device employs an inverter as the power supply for EL. The inverter has an output voltage reach approximately 500 volts(AC). Utmost care should be used not to suffer from a possible electric shock, accordingly.
- When executing an operation, be aware that the in around IC651 can become quite hot to the touch.

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K-ZZD. FEB. 1999 Printed in Japan

● CD Player Service Precautions

1. For pickup unit(CXX1285) handling, please refer to "Disassembly"(see page 86).

During replacement, handling precautions shall be taken to prevent an electrostatic discharge(protection by a short pin).

2. During disassembly, be sure to turn the power off since an internal IC might be destroyed when a connector is plugged or unplugged.

3. Please checking the grating after changing the service pickup unit(see page 72).

1. SAFETY INFORMATION

CAUTION

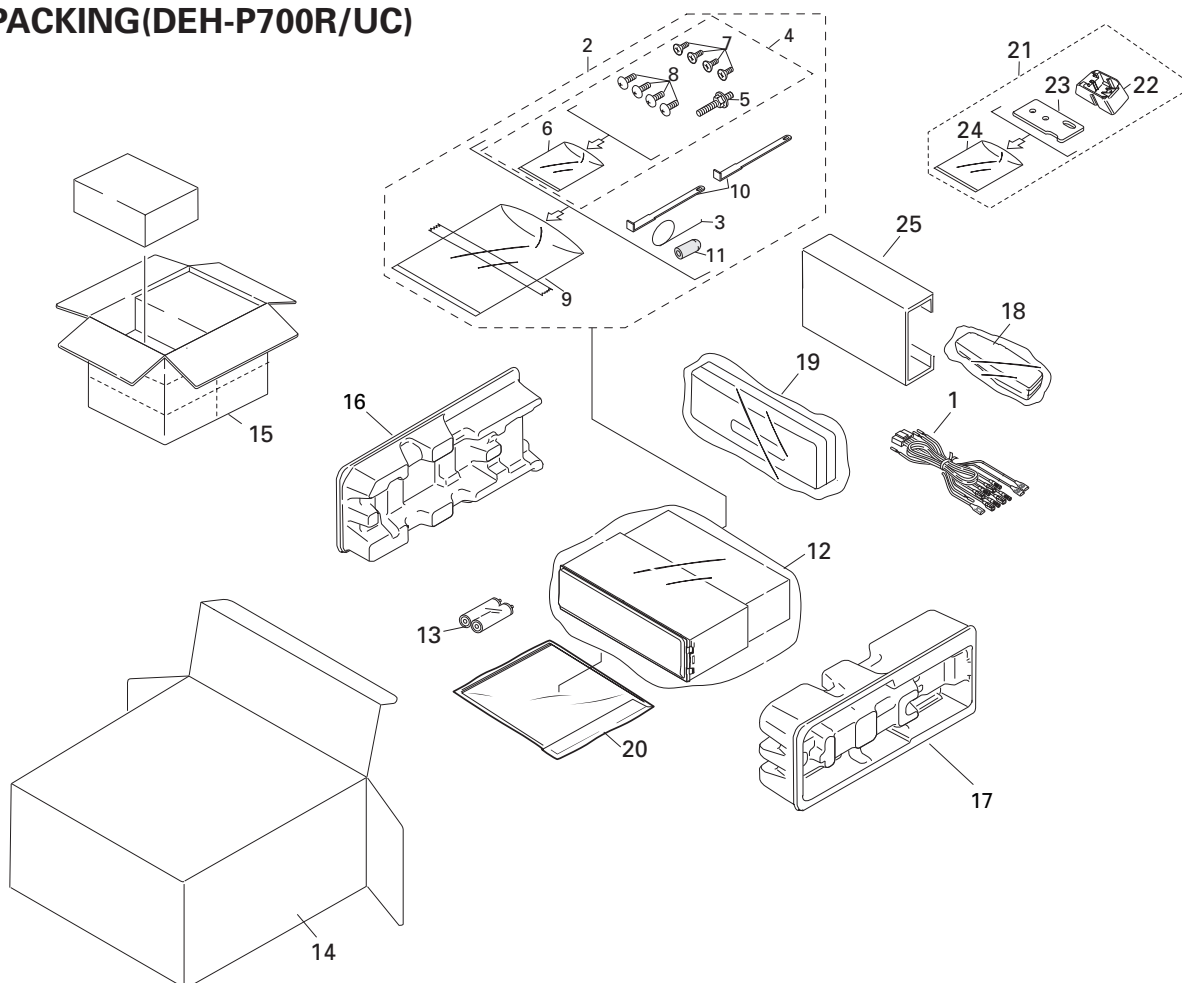
This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely; you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.
Health & Safety Code Section 25249.6 - Proposition 65

2. EXPLODED VIEWS AND PARTS LIST

2.1 PACKING(DEH-P700R/UC)



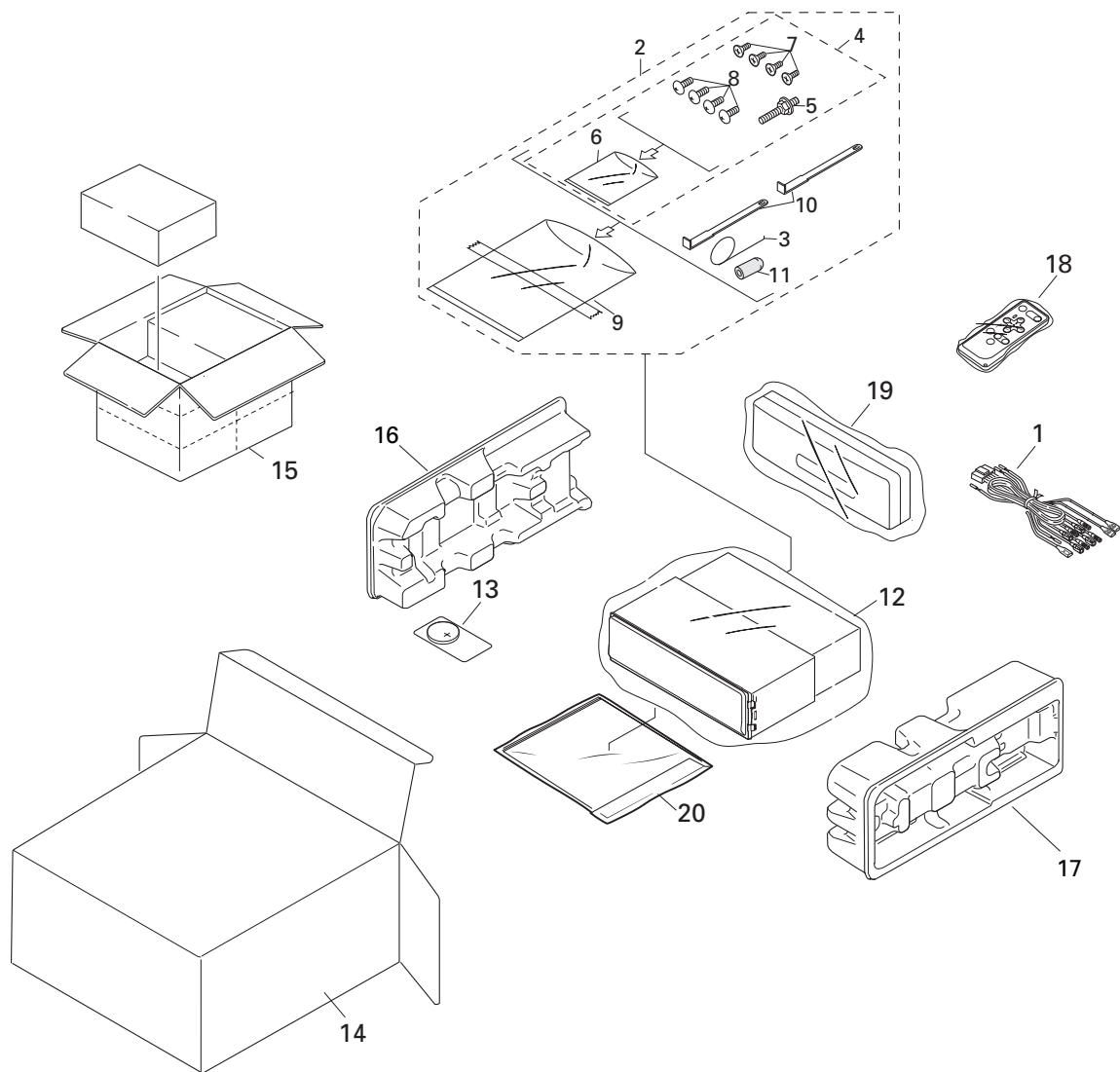
NOTE:

- Parts marked by "*" are generally unavailable because they are not in our Master Spare Parts List.
- Screws adjacent to ∇ mark on the product are used for disassembly.

● PACKING SECTION PARTS LIST

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Cord Assy	CDE5829		16	Protector	CHP2101
*	2	Accessory Assy	CEA2395		17	Protector	CHP2102
	3	Spring	CBH1650		18	Remote Control Assy	CXB3875
*	4	Screw Assy	CEA2396		19	Case Assy	CXB3520
	5	Screw	CBA1002		20-1	Owner's Manual	CRD2906
						(English, French)	
*	6	Polyethylene Bag	CEG-127		20-2	Installation Manual	CRD2907
	7	Screw	CRZ50P090FMC			(English, French)	
	8	Screw	TRZ50P080FMC				
*	9	Polyethylene Bag	CEG-158	*	20-3	Warranty Card	CRY1070
	10	Handle	CNC5395		20-4	Polyethylene Bag	CEG1116
	11	Bush	CNV3930	*	20-5	Label	CRW1343
	12	Polyethylene Bag	CEG1173		21	Base Assy	CEA2426
	13	Battery	CEX1006	*	22	Base	CNS5031
	14	Carton	CHG3749	*	23	Sheet	CZA3371
	15	Contain Box	CHL3749		24	Polyethylene Bag	CZE3188
					25	Inner Box	CHW1759

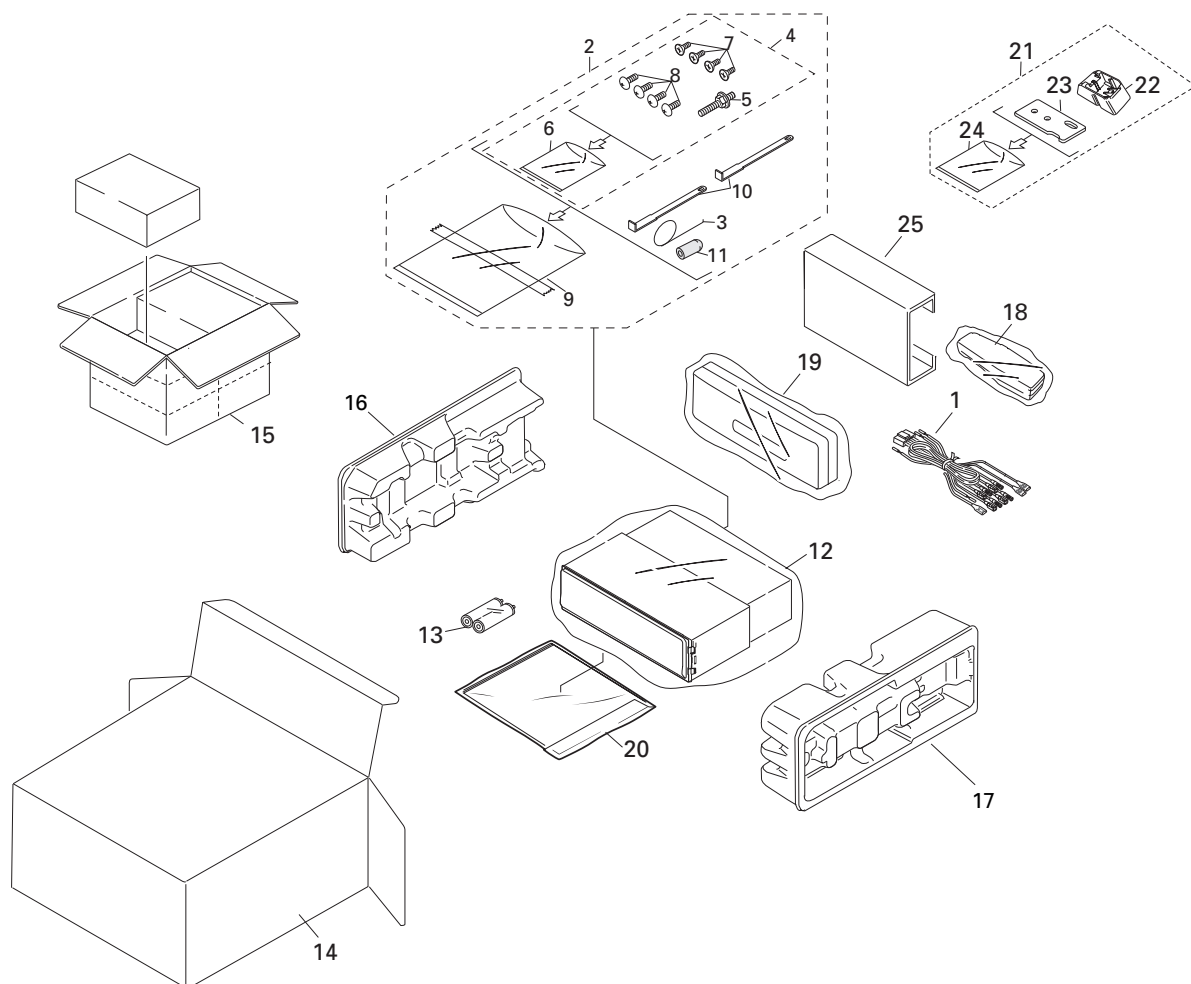
2.2 PACKING(DEH-P7000R/UC)



● PACKING SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
	1 Cord Assy	CDE5827	16 Protector	CHP2101	
*	2 Accessory Assy	CEA2395	17 Protector	CHP2102	
	3 Spring	CBH1650	18 Remote Control Unit	CXB3455	
*	4 Screw Assy	CEA2396	19 Case Assy	CXB3520	
	5 Screw	CBA1002	20-1 Owner's Manual	CRD2908	
				(English, French)	
*	6 Polyethylene Bag	CEG-127	20-2 Installation Manual	CRD2909	
	7 Screw	CRZ50P090FMC		(English, French)	
	8 Screw	TRZ50P080FMC	*	20-3 Card	ARY1048
*	9 Polyethylene Bag	CEG-158	20-4 Polyethylene Bag	CEG1116	
	10 Handle	CNC5395			
	11 Bush	CNV3930	*	20-5 Label	CRW1343
	12 Polyethylene Bag	CEG1173			
	13 Battery	CEX1030			
	14 Carton	CHG3748			
	15 Contain Box	CHL3748			

2.3 PACKING(DEH-P7050/ES)

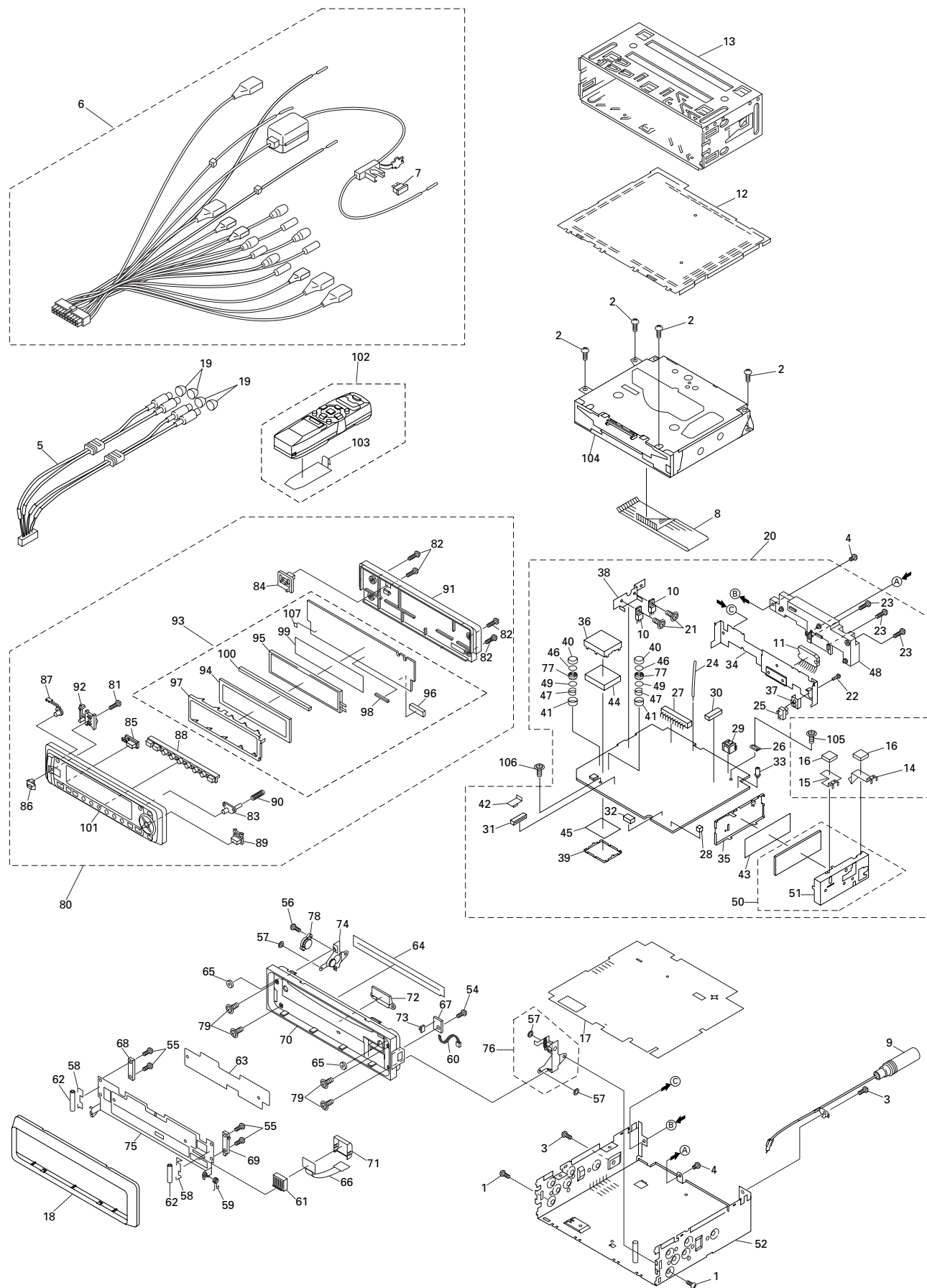


● PACKING SECTION PARTS LIST

Mark No.	Description	Part No.
	1 Cord Assy	CDE5828
*	2 Accessory Assy	CEA2395
	3 Spring	CBH1650
*	4 Screw Assy	CEA2396
	5 Screw	CBA1002
*	6 Polyethylene Bag	CEG-127
	7 Screw	CRZ50P090FMC
	8 Screw	TRZ50P080FMC
*	9 Polyethylene Bag	CEG-158
	10 Handle	CNC5395
	11 Bush	CNV3930
	12 Polyethylene Bag	CEG-162
	13 Battery	CEX1006
	14 Carton	CHG3747
	15 Contain Box	CHL3747
	16 Protector	CHP2101
	17 Protector	CHP2102
	18 Remote Control Assy	CXB3875
	19 Case Assy	CXB3520
	20-1 Owner's Manual	CRD2903

Mark No.	Description	Part No.
	(English, Spanish, Portuguese)	
20-2	Owner's Manual	CRD2904
	(Arabic, Chinese)	
20-3	Installation Manual	CRD2905
	(English, Spanish, Portuguese,	
	Arabic, Chinese)	
20-4	Polyethylene Bag	CEG1116
	21 Base Assy	CEA2426
*	22 Base	CNS5031
*	23 Sheet	CZA3371
	24 Polyethylene Bag	CZE3188
	25 Inner Box	CHW1759

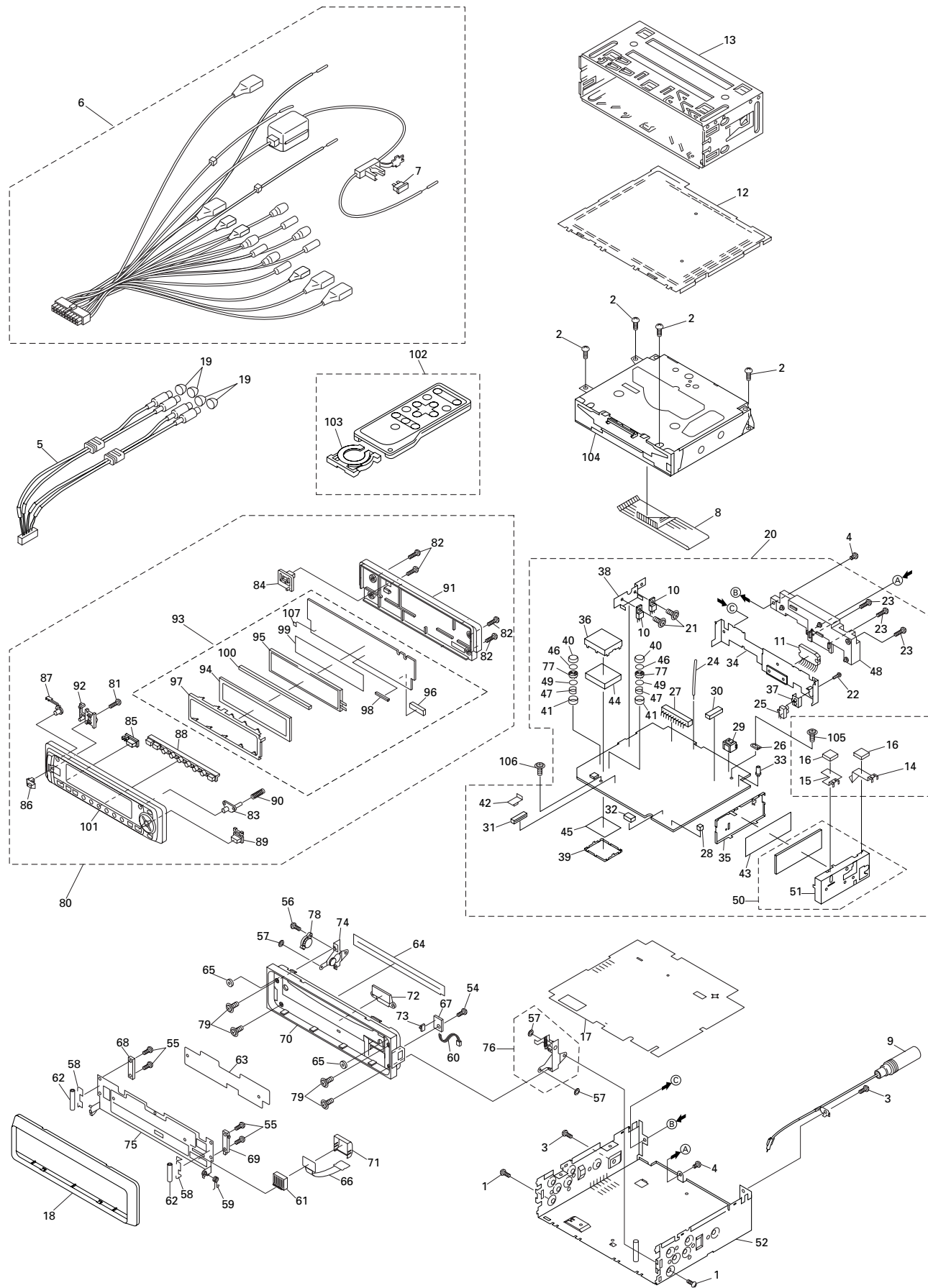
2.4 EXTERIOR(DEH-P700R/UC)



● EXTERIOR SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	BMZ30P040FMC	56	Screw	CBA1176
2	Screw	BSZ26P060FMC	57	Washer	CBF1001
3	Screw	BSZ30P060FMC	58	Spring	CBH2063
4	Screw	BSZ30P100FMC	59	Spring	CBH2204
5	Cord Assy	CDE5821	60	Cord	CDE5800
6	Cord Assy	CDE5829	61	Connector	CKS2780
7	Fuse(10A)	CEK1136	62	Roller	CLA3386
8	Connector	CDE6049	63	Sheet	CNM6109
9	Antenna Cable	CDH1266	64	Cover	CNM6118
10	Transistor(Q954,991)	2SD2396	65	Cushion	CNM6376
11	IC(IC551)	PAL005A	66	PCB	CNP5383
12	Case	CNB2508	67	PCB	CNP5430
13	Holder	CNC6798	68	Holder	CNS5157
14	Holder	CNC8300	69	Holder	CNS5165
15	Holder	CNC8357	70	Panel	CNS5280
16	Spacer	CNM4913	71	Cover	CNS5389
17	Insulator	CNM6075	72	Lighting Conductor	CNV5540
18	Panel	CNS5148	73	Switch(S651)	CSN1027
19	Cap	CNV2680	74	Holder Unit	CXB3049
20	Tuner Amp Unit	CWM6188	75	Holder Unit	CXB3050
21	Screw	ASZ26P080FMC	76	Holder Unit	CXB3051
22	Screw	BPZ26P060FMC	77	Coil(L652,L653)	CTH1228
23	Screw	BSZ26P160FMC	78	Damper Unit	CXB3180
24	Clamper	CEF1009	79	Screw	IMS20P040FZK
25	Pin Jack(CN431)	CKB1028	80	Detach Grille Assy	CXB3684
26	Terminal(CN501)	CKF1059	81	Screw	BPZ20P060FMC
27	Plug(CN951)	CKM1296	82	Screw	BPZ20P080FZK
28	Plug(CN652)	CKS-783	83	Button(OPEN)	CAC5804
29	Connector(CN411)	CKS3408	84	Button(EJECT)	CAC5805
30	Connector(CN433)	CKS3602	85	Button(SOURCE)	CAC5806
31	Connector(CN681)	CKS3838	86	Button(EQ)	CAC5808
32	Connector(CN651)	CKS4077	87	Button(DISP)	CAC5809
33	Mini Pin Jack(CN502)	CKX1046	88	Button(1-6)	CAC5811
34	Panel	CNB2375	89	Button(BAND)	CAC5936
35	Holder	CNC7533	90	Spring	CBH2205
36	Case	CNC8138	91	Cover	CNS5146
37	Holder	CNC8298	92	Holder	CNV5537
38	Holder	CNC8299	93	Keyboard Unit	CWM6196
39	Case	CNC8301	94	LCD	CAW1519
40	Case	CNC8376	95	EL	CEL1592
41	Case	CNC8377	96	Connector(CN901)	CKS2733
42	Heat Sink	CNC8437	97	Holder	CNC8157
43	Insulator	CNM5967	98	Spacer	CNM6379
44	Insulator	CNM6249	99	Double Sided Tape	CNM6380
45	Insulator	CNM6250	100	Connector	CNV5539
46	Insulator	CNM6298	101	Grille Unit	CXB4090
47	Insulator	CNM6299	102	Remote Control Assy	CXB3875
48	Heat Sink	CNR1550	103	Battery Cover	CNS5032
49	Insulator	CNV5816	104	CD Mechanism Module	CXK5200
50	FM/AM Tuner Unit	CWE1501	105	Screw	ISS26P055FUC
51	Holder	CNC7532	106	Screw	CBA1492
52	Chassis Unit	CXB3306	107	Spacer	CNM6421
53				
54	Screw	BPZ20P060FMC			
55	Screw	CBA1082			

2.5 EXTERIOR(DEH-P7000R/UC)



● EXTERIOR SECTION PARTS LIST

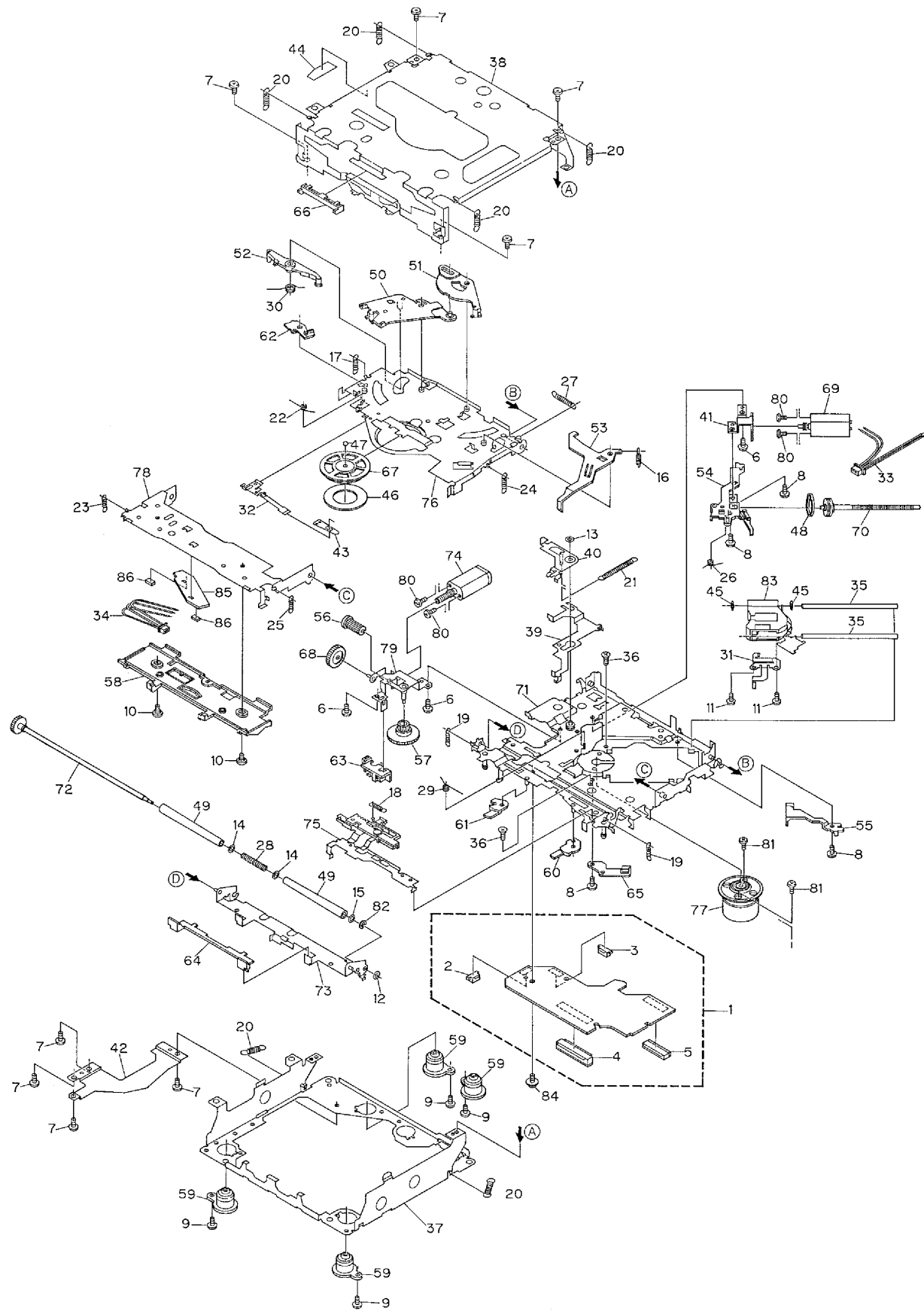
Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	BMZ30P040FMC	56	Screw	CBA1176
2	Screw	BSZ26P060FMC	57	Washer	CBF1001
3	Screw	BSZ30P060FMC	58	Spring	CBH2063
4	Screw	BSZ30P100FMC	59	Spring	CBH2204
5	Cord Assy	CDE5821	60	Cord	CDE5800
6	Cord Assy	CDE5827	61	Connector	CKS2780
7	Fuse(10A)	CEK1136	62	Roller	CLA3386
8	Connector	CDE6049	63	Sheet	CNM6109
9	Antenna Cable	CDH1266	64	Cover	CNM6118
10	Transistor(Q954,991)	2SD2396	65	Cushion	CNM6376
11	IC(IC551)	PAL005A	66	PCB	CNP5383
12	Case	CNB2508	67	PCB	CNP5430
13	Holder	CNC6798	68	Holder	CNS5157
14	Holder	CNC8300	69	Holder	CNS5165
15	Holder	CNC8357	70	Panel	CNS5280
16	Spacer	CNM4913	71	Cover	CNS5389
17	Insulator	CNM6075	72	Lighting Conductor	CNV5540
18	Panel	CNS5148	73	Switch(S651)	CSN1027
19	Cap	CNV2680	74	Holder Unit	CXB3049
20	Tuner Amp Unit	CWM6189	75	Holder Unit	CXB3050
21	Screw	ASZ26P080FMC	76	Holder Unit	CXB3051
22	Screw	BPZ26P060FMC	77	Coil(L652,L653)	CTH1228
23	Screw	BSZ26P160FMC	78	Damper Unit	CXB3180
24	Clamper	CEF1009	79	Screw	IMS20P040FZK
25	Pin Jack(CN431)	CKB1028	80	Detach Grille Assy	CXB3685
26	Terminal(CN501)	CKF1059	81	Screw	BPZ20P060FMC
27	Plug(CN952)	CKM1294	82	Screw	BPZ20P080FZK
28	Plug(CN652)	CKS-783	83	Button(OPEN)	CAC5804
29	Connector(CN411)	CKS3408	84	Button(EJECT)	CAC5805
30	Connector(CN433)	CKS3602	85	Button(SOURCE)	CAC5806
31	Connector(CN681)	CKS3838	86	Button(EQ)	CAC5808
32	Connector(CN651)	CKS4077	87	Button(DISP)	CAC5809
33	Mini Pin Jack(CN502)	CKX1046	88	Button(1-6)	CAC5811
34	Panel	CNB2376	89	Button(BAND)	CAC5936
35	Holder	CNC7533	90	Spring	CBH2205
36	Case	CNC8138	91	Cover	CNS5146
37	Holder	CNC8298	92	Holder	CNV5537
38	Holder	CNC8299	93	Keyboard Unit	CWM6196
39	Case	CNC8301	94	LCD	CAW1519
40	Case	CNC8376	95	EL	CEL1592
41	Case	CNC8377	96	Connector(CN901)	CKS2733
42	Heat Sink	CNC8437	97	Holder	CNC8157
43	Insulator	CNM5967	98	Spacer	CNM6379
44	Insulator	CNM6249	99	Double Sided Tape	CNM6380
45	Insulator	CNM6250	100	Connector	CNV5539
46	Insulator	CNM6298	101	Grille Unit	CXB4091
47	Insulator	CNM6299	102	Remote Control Unit	CXB3455
48	Heat Sink	CNR1550	103	Cover	CNS4948
49	Insulator	CNV5816	104	CD Mechanism Module	CXK5200
50	FM/AM Tuner Unit	CWE1501	105	Screw	ISS26P055FUC
51	Holder	CNC7532	106	Screw	CBA1492
52	Chassis Unit	CXB3306	107	Spacer	CNM6421
53				
54	Screw	BPZ20P060FMC			
55	Screw	CBA1082			



● EXTERIOR SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	BMZ30P040FMC	56	Screw	CBA1176
2	Screw	BSZ26P060FMC	57	Washer	CBF1001
3	Screw	BSZ30P060FMC	58	Spring	CBH2063
4	Screw	BSZ30P100FMC	59	Spring	CBH2204
5	Cord Assy	CDE5821	60	Cord	CDE5800
6	Cord Assy	CDE5828	61	Connector	CKS2780
7	Fuse(10A)	CEK1136	62	Roller	CLA3386
8	Connector	CDE6049	63	Sheet	CNM6109
9	Antenna Cable	CDH1266	64	Cover	CNM6118
10	Transistor(Q954,991)	2SD2396	65	Cushion	CNM6376
11	IC(IC551)	PAL005A	66	PCB	CNP5383
12	Case	CNB2508	67	PCB	CNP5430
13	Holder	CNC6798	68	Holder	CNS5157
14	Holder	CNC8300	69	Holder	CNS5165
15	Holder	CNC8357	70	Panel	CNS5280
16	Spacer	CNM4913	71	Cover	CNS5389
17	Insulator	CNM6075	72	Lighting Conductor	CNV5540
18	Panel	CNS5148	73	Switch(S651)	CSN1027
19	Cap	CNV2680	74	Holder Unit	CXB3049
20	Tuner Amp Unit	CWM6187	75	Holder Unit	CXB3050
21	Screw	ASZ26P080FMC	76	Holder Unit	CXB3051
22	Screw	BPZ26P060FMC	77	Coil(L652,L653)	CTH1228
23	Screw	BSZ26P160FMC	78	Damper Unit	CXB3180
24	Clamper	CEF1009	79	Screw	IMS20P040FZK
25	Pin Jack(CN431)	CKB1028	80	Detach Grille Assy	CXB3683
26	Terminal(CN501)	CKF1059	81	Screw	BPZ20P060FMC
27	Plug(CN951)	CKM1296	82	Screw	BPZ20P080FZK
28	Plug(CN652)	CKS-783	83	Button(OPEN)	CAC5804
29	Connector(CN411)	CKS3408	84	Button(EJECT)	CAC5805
30	Connector(CN433)	CKS3602	85	Button(SOURCE)	CAC5806
31	Connector(CN681)	CKS3838	86	Button(EQ)	CAC5808
32	Connector(CN651)	CKS4077	87	Button(DISP)	CAC5809
33	Mini Pin Jack(CN502)	CKX1046	88	Button(1-6)	CAC5826
34	Panel	CNB2375	89	Button(BAND)	CAC5936
35	Holder	CNC7533	90	Spring	CBH2205
36	Case	CNC8138	91	Cover	CNS5146
37	Holder	CNC8298	92	Holder	CNV5537
38	Holder	CNC8299	93	Keyboard Unit	CWM6197
39	Case	CNC8301	94	LCD	CAW1518
40	Case	CNC8376	95	EL	CEL1592
41	Case	CNC8377	96	Connector(CN901)	CKS2733
42	Heat Sink	CNC8437	97	Holder	CNC8157
43	Insulator	CNM5967	98	Spacer	CNM6379
44	Insulator	CNM6249	99	Double Sided Tape	CNM6380
45	Insulator	CNM6250	100	Connector	CNV5539
46	Insulator	CNM6298	101	Grille Unit	CXB4089
47	Insulator	CNM6299	102	Remote Control Assy	CXB3875
48	Heat Sink	CNR1550	103	Battery Cover	CNS5032
49	Insulator	CNV5816	104	CD Mechanism Module	CXK5200
50	FM/AM Tuner Unit	CWE1501	105	Screw	ISS26P055FUC
51	Holder	CNC7532	106	Screw	CBA1492
52	Chassis Unit	CXB3306	107	Spacer	CNM6421
53				
54	Screw	BPZ20P060FMC			
55	Screw	CBA1082			

2.7 CD MECHANISM MODULE

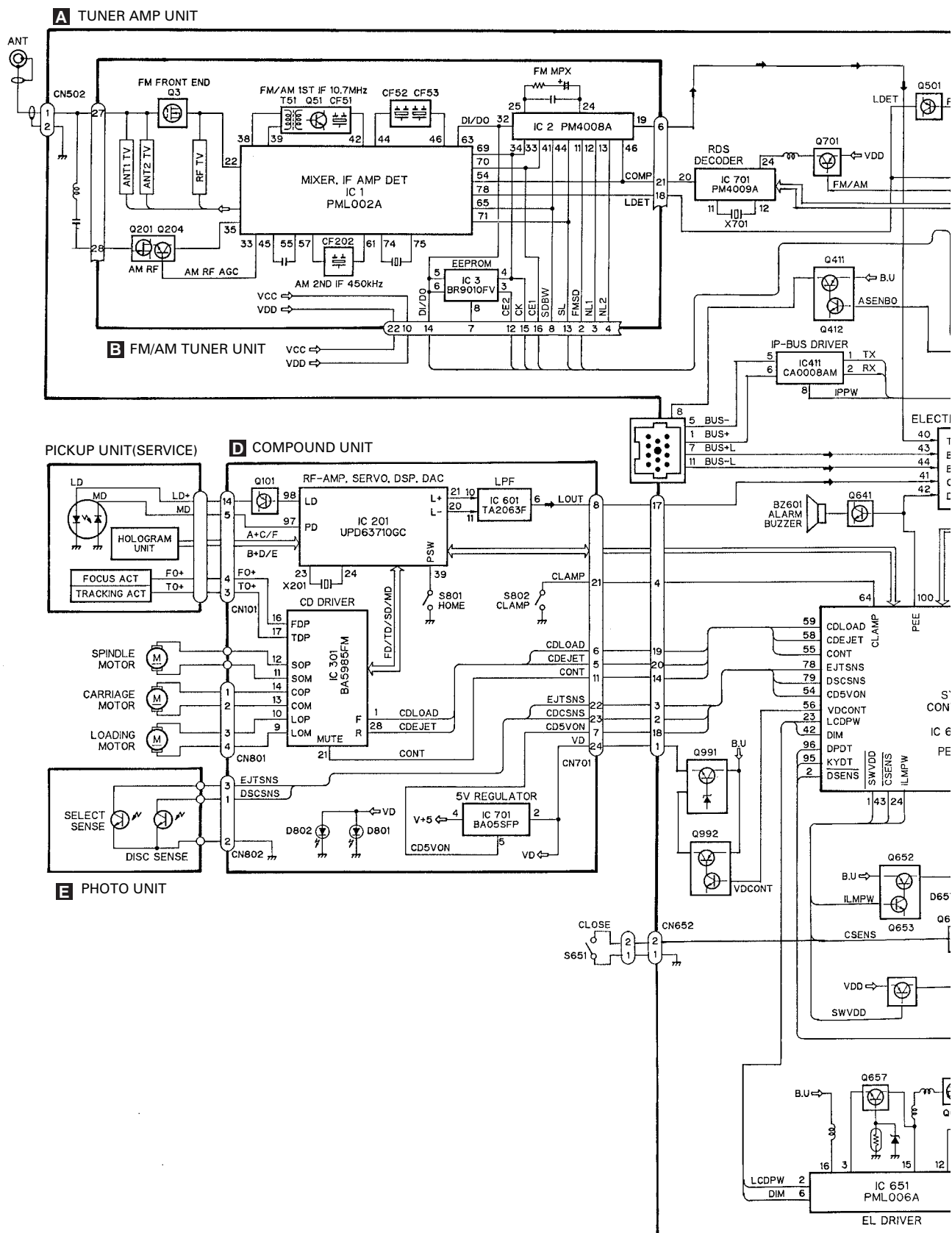


● CD MECHANISM MODULE SECTION PARTS LIST

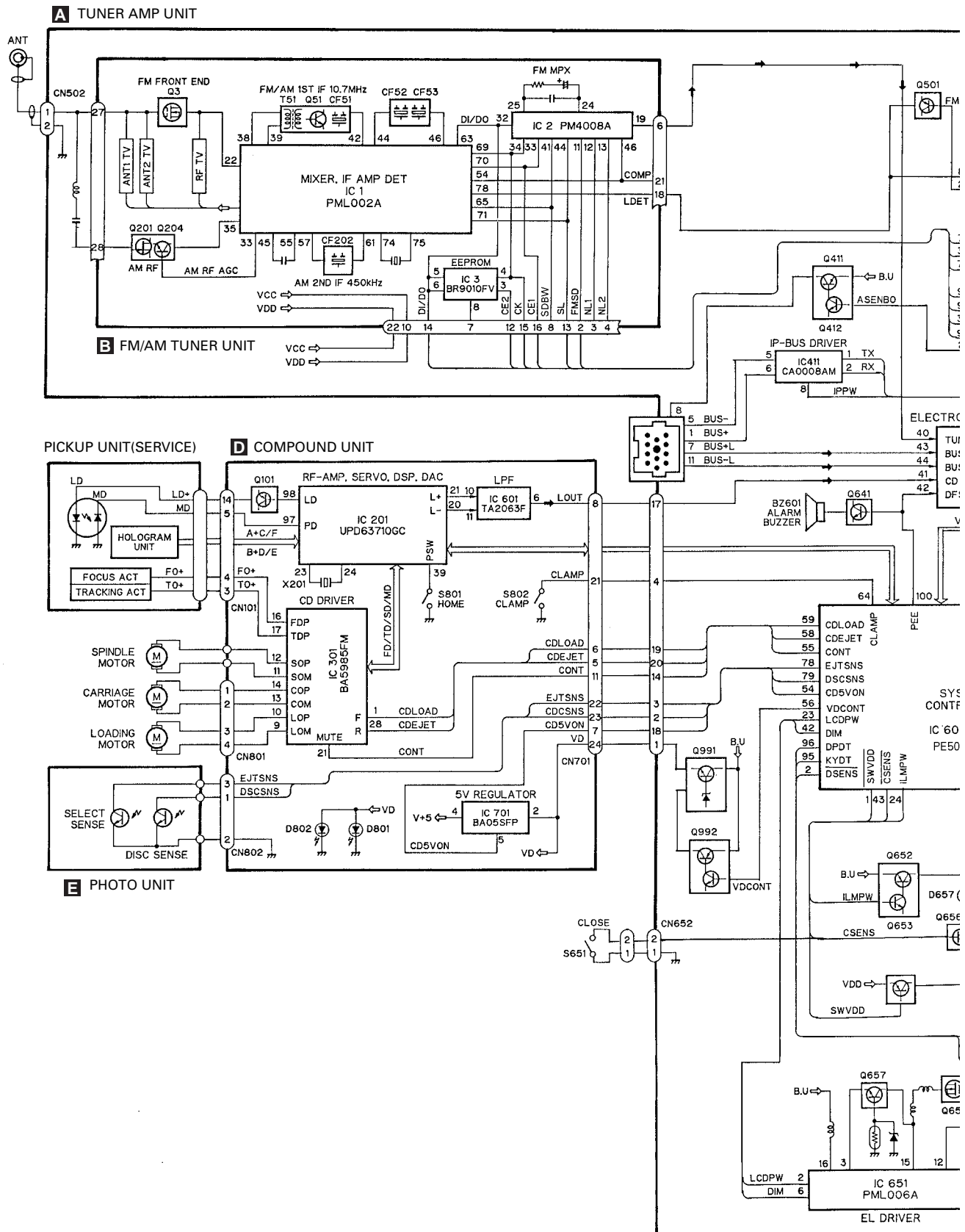
Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Compound Unit	CWX2235	46	Sheet	CNM6215
2	Connector(CN802)	CKS2192	47	Ball	CNR1189
3	Connector(CN801)	CKS2193	48	Belt	CNT1086
4	Connector(CN701)	CKS2773	49	Roller	CNV4509
5	Connector(CN101)	CKS3486	50	Arm	CNV5246
6	Screw	BMZ20P030FZK	51	Arm	CNV5247
7	Screw	BSZ20P040FZK	52	Arm	CNV5248
8	Screw(M2×3)	CBA1077	53	Arm	CNV5249
9	Screw(M2×6)	CBA1230	54	Guide	CNV5254
10	Screw	CBA1243	55	Guide	CNV5255
11	Screw(M2×4)	CBA1362	56	Gear	CNV5257
12	Washer	CBF1037	57	Gear	CNV5256
13	Washer	CBF1038	58	Guide	CNV5869
14	Washer	CBF1060	59	Damper	CNV5266
* 15	Washer	CBF1075	60	Arm	CNV5359
16	Spring	CBH2079	61	Arm	CNV5360
17	Spring	CBH2117	62	Arm	CNV5361
18	Spring	CBH2278	63	Guide	CNV5509
19	Spring	CBH2110	64	Guide	CNV5510
20	Spring	CBH2282	65	Holder	CNV5578
21	Spring	CBH2114	66	Guide	CNV5751
22	Spring	CBH2115	67	Clamper	CNV5758
23	Spring	CBH2080	68	Gear	CNV5813
24	Spring	CBH2118	69	Motor Unit(M1)	CXB2190
25	Spring	CBH2161	70	Screw Unit	CXB2191
26	Spring	CBH2163	71	Chassis Unit	CXB2192
27	Spring	CBH2189	72	Gear Unit	CXB2193
28	Spring	CBH2249	73	Arm Unit	CXB2194
29	Spring	CBH2260	74	Motor Unit(M2)	CXB2195
30	Spring	CBH2262	75	Lever Unit	CXB2553
31	Spring	CBL1367	76	Arm Unit	CXB2554
32	Spring	CBL1369	77	Motor Unit(M3)	CXB2562
33	Connector	CDE5531	78	Arm Unit	CXB2795
34	Connector	CDE5532	79	Bracket Unit	CXB4071
35	Shaft	CLA3304	80	Screw	JFZ20P025FMC
36	Screw(M2.6×6)	CBA1458	81	Screw	JGZ17P025FZK
37	Frame	CNC7544	82	Washer	YE15FUC
38	Frame	CNC7545	83	Pickup Unit(Service)(P8)	CXX1285
39	Lever	CNC7546	84	Screw	IMS26P030FMC
40	Arm	CNC7739	* 85	PCB	CNX2982
41	Bracket	CNC7798	86	Photo-transistor(Q1, 2)	CPT230SX-TU
42	Plate	CNC8090			
43	Spacer	CNM3315			
44	Sheet	CNM6170			
45	Cushion	CNM6204			

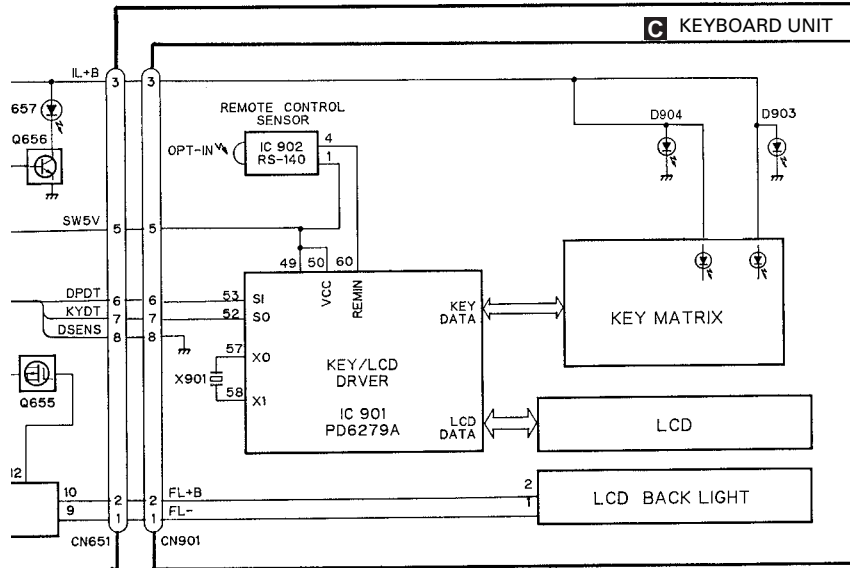
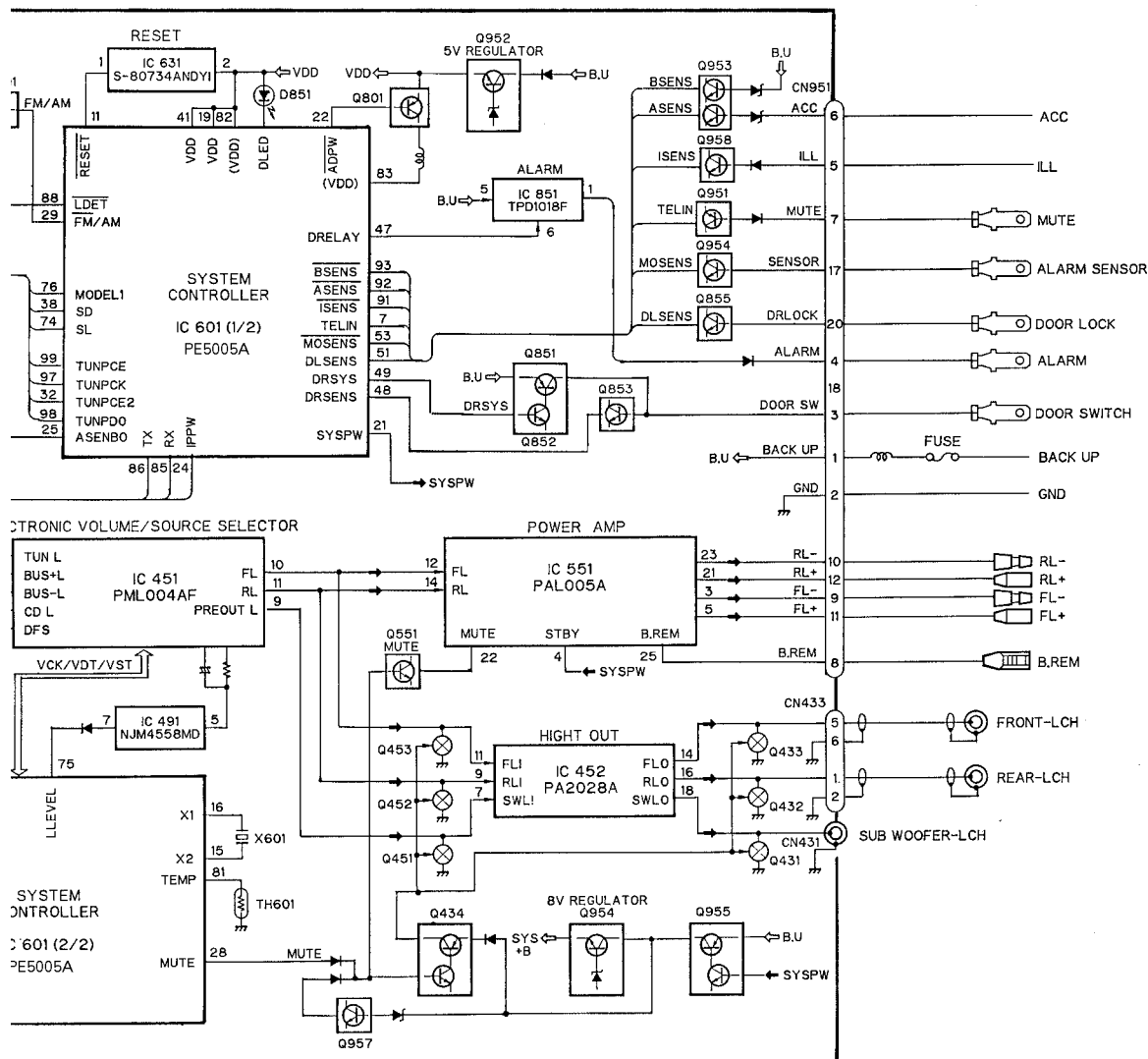
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

3.1 BLOCK DIAGRAM(DEH-P700R/UC)



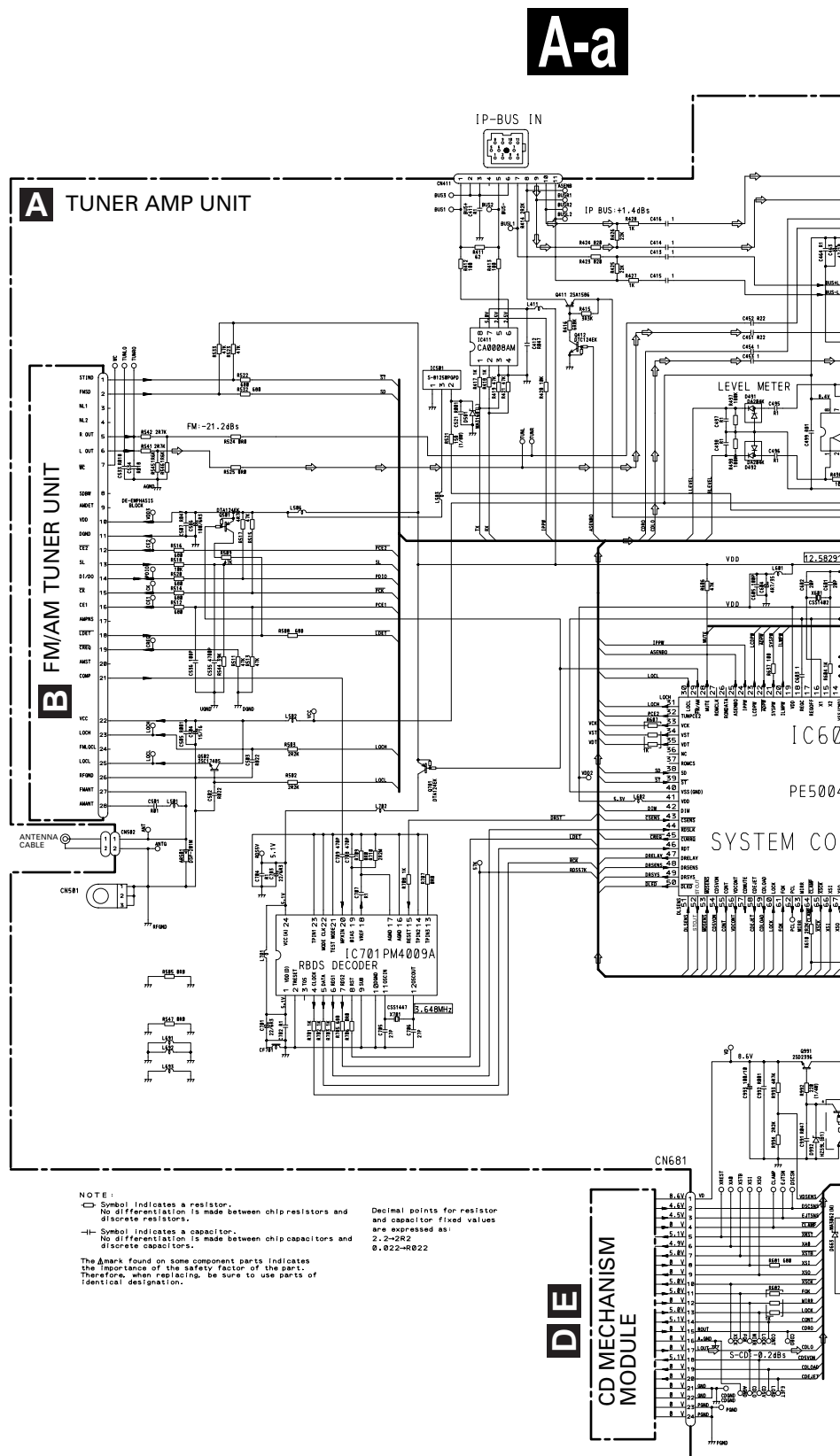
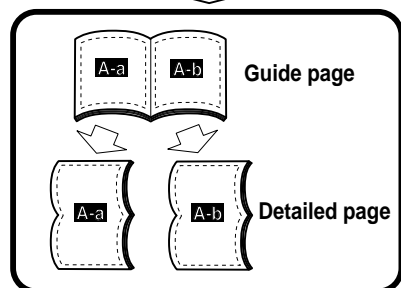
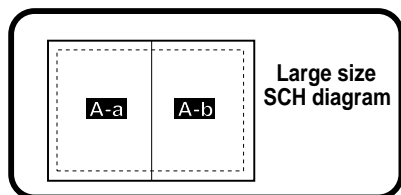
3.2 BLOCK DIAGRAM(DEH-P7050/ES)

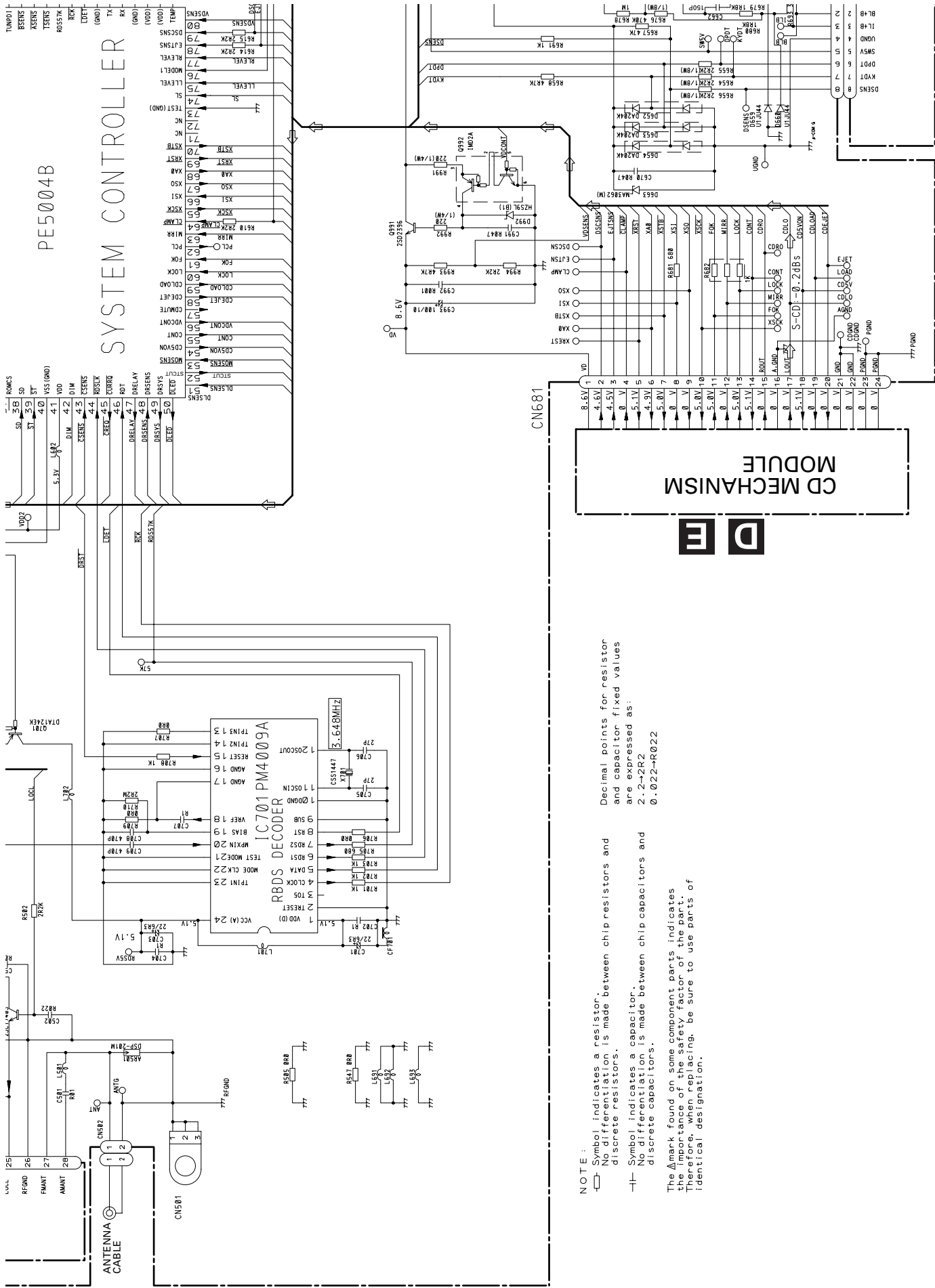




3.3 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)(DEH-P700R/UC)

Note: When ordering service parts, be sure to refer to “EXPLODED VIEWS AND PARTS LIST” or “ELECTRICAL PARTS LIST”.

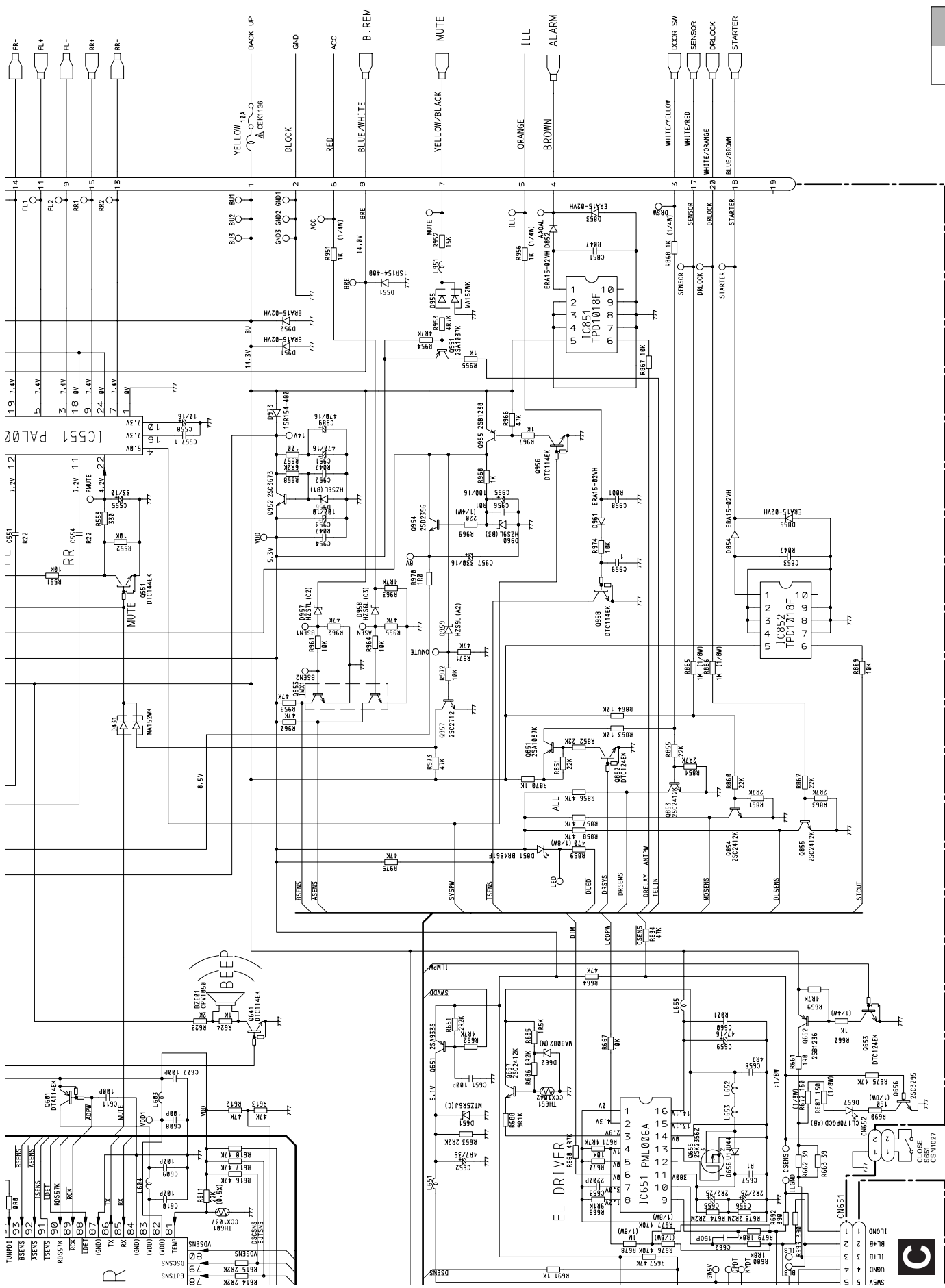




NOTE :

- Symbol indicates a resistor.
- No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor.
- No differentiation is made between chip capacitors and discrete capacitors.

The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

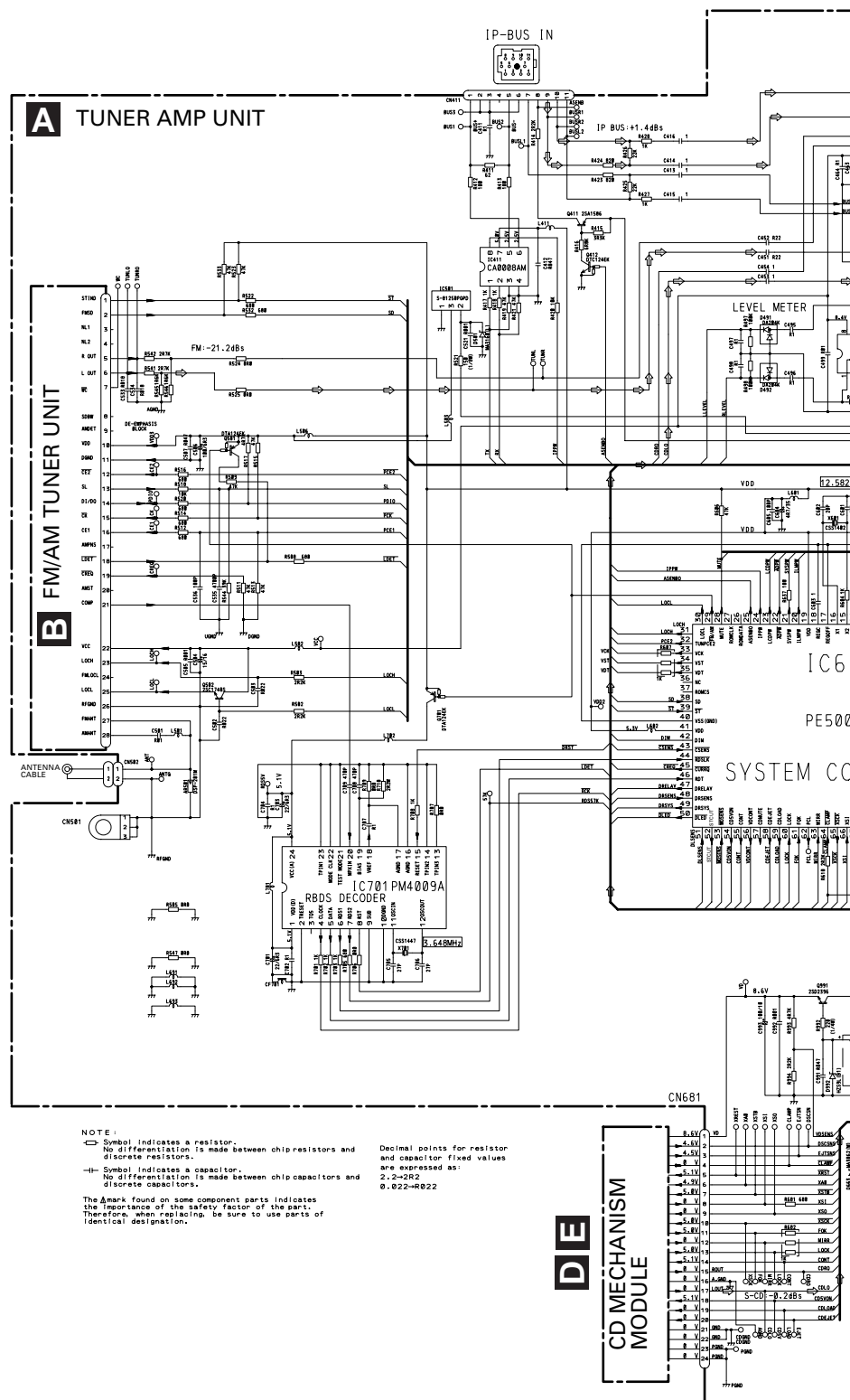


A-a A-b

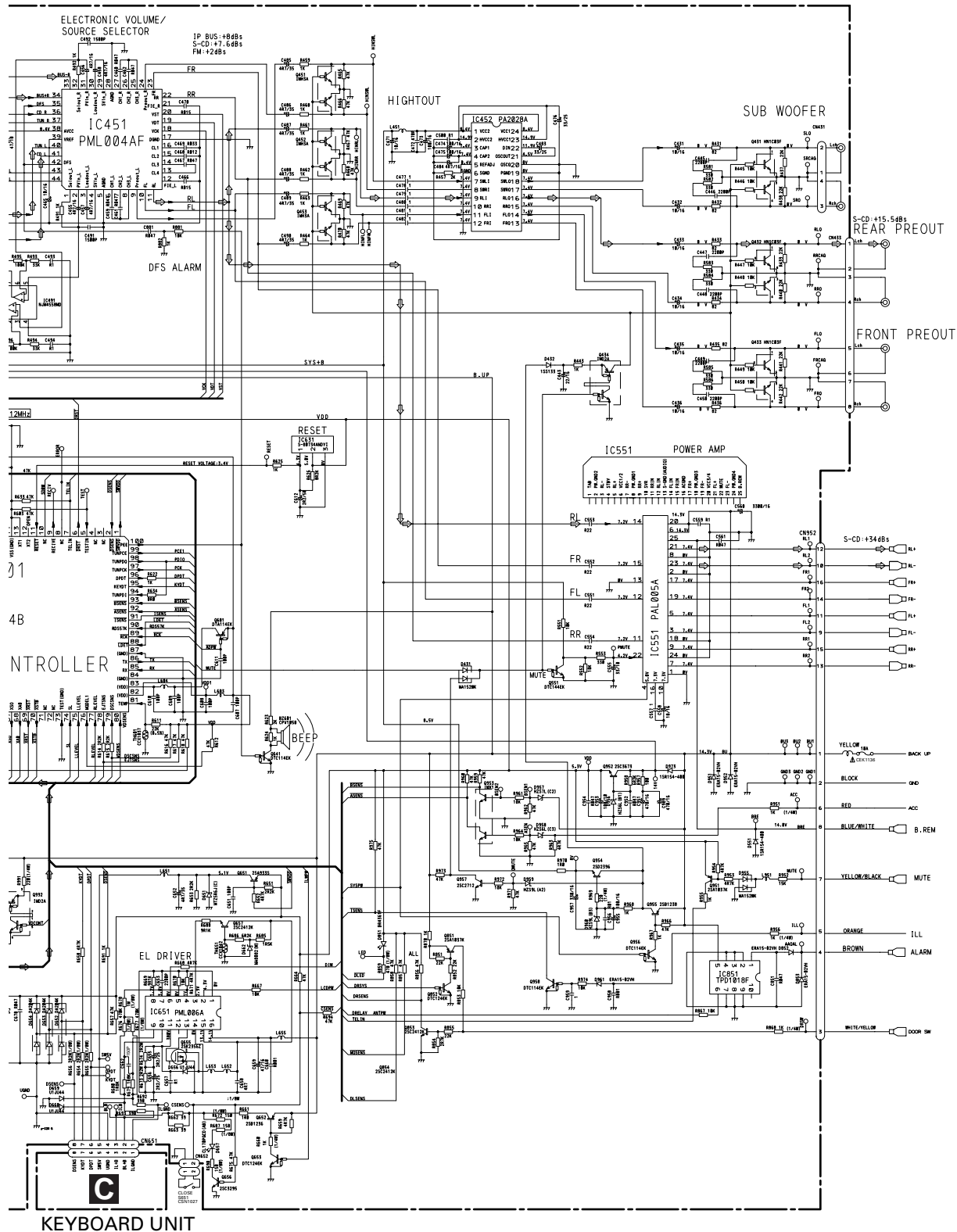
A-b

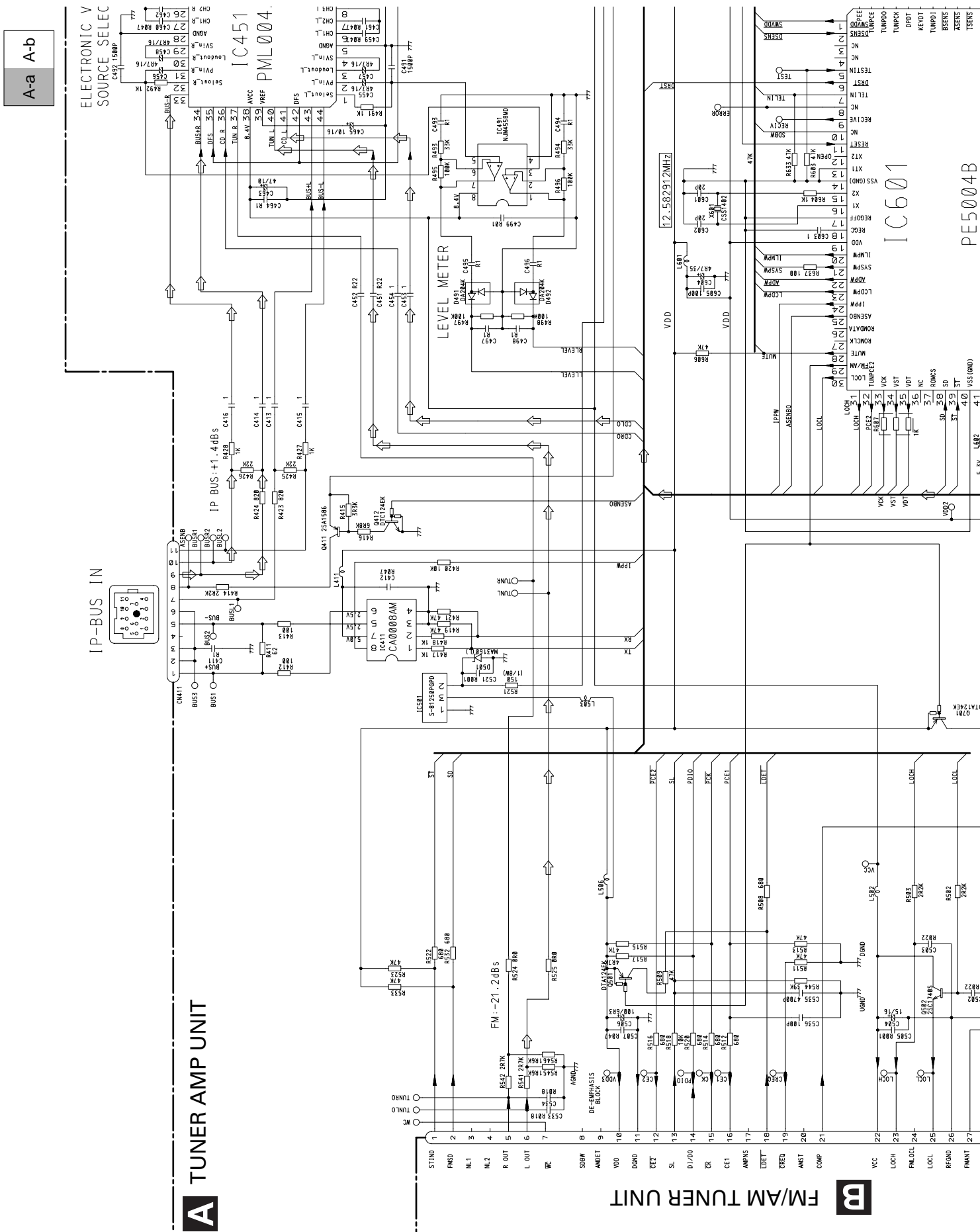
3.4 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)(DEH-P7000R/UC)

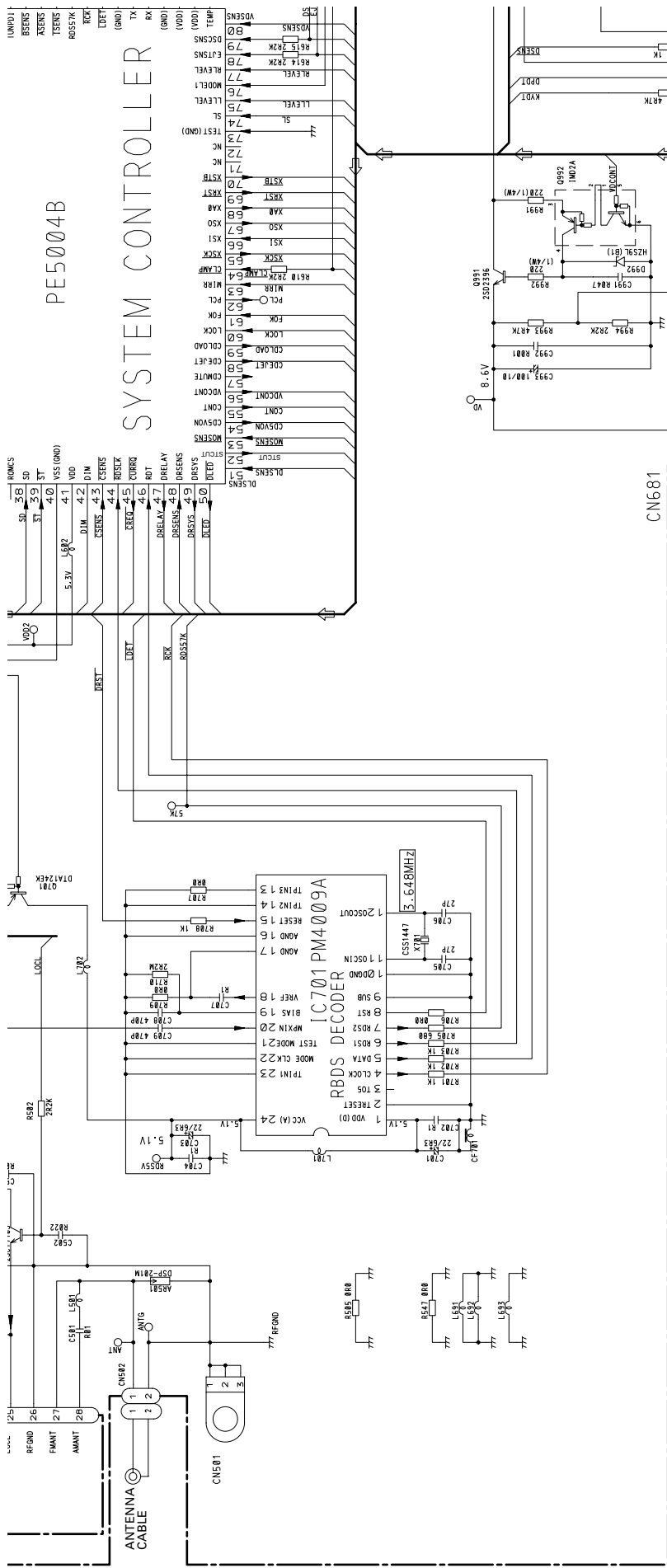
A-a



A-b







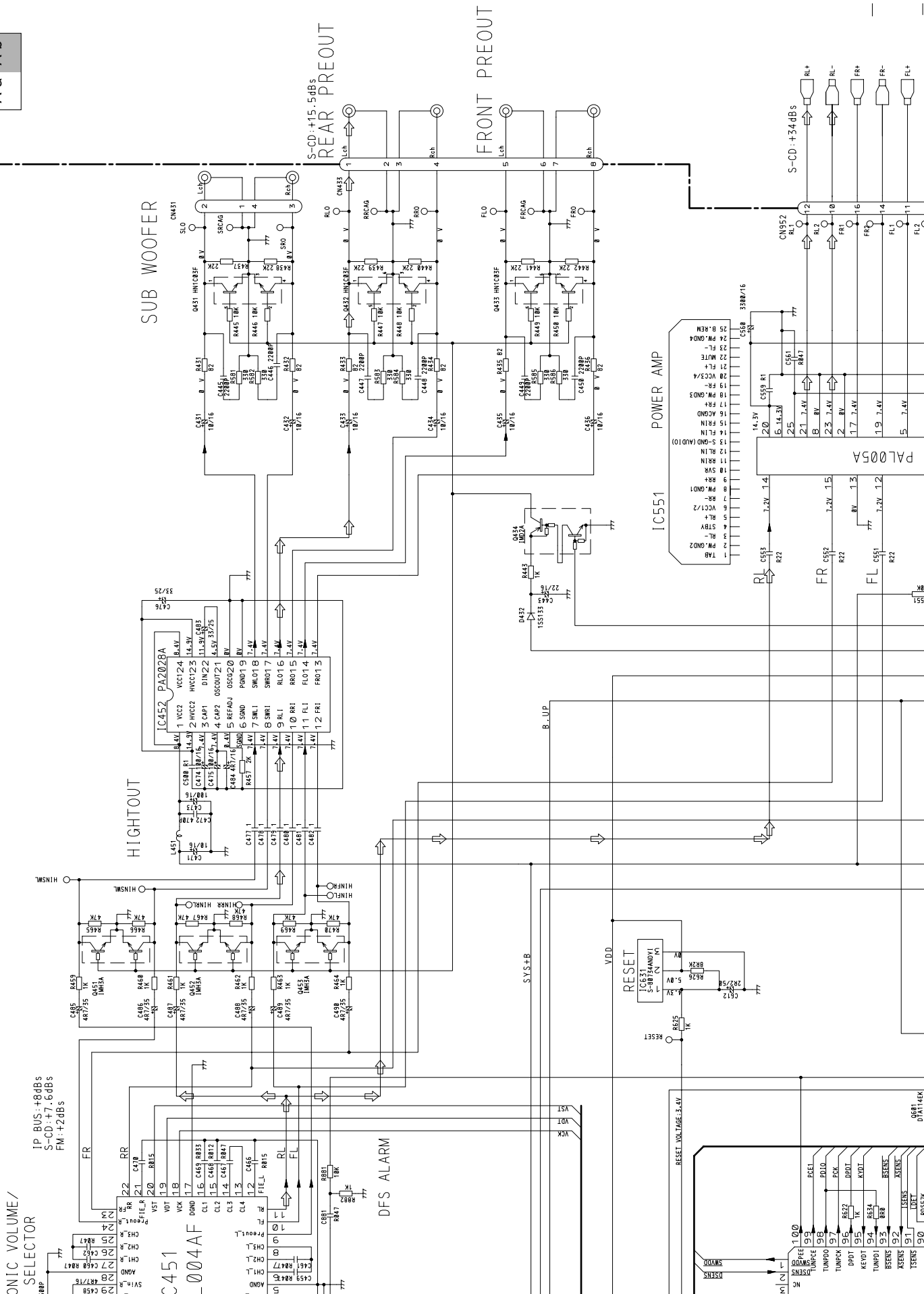
NOTE :

- Symbol indicates a resistor.
- No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor.
- No differentiation is made between chip capacitors and discrete capacitors.

The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.



A-a



IP BUS: +84Bs
S-CD: +7.64Bs
FM: +24Bs

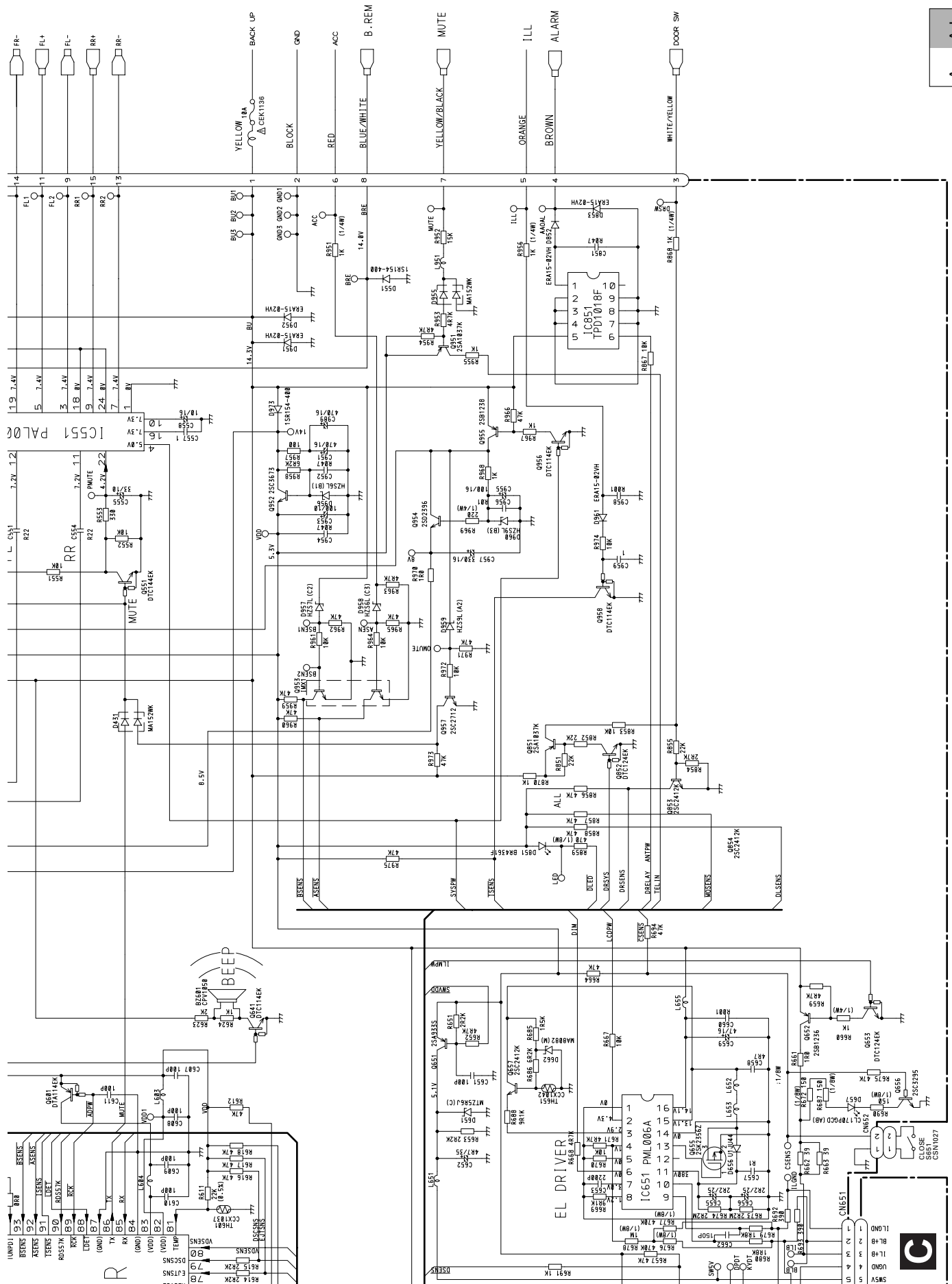
ICN51 VOLUME /
SELECTOR

DFS ALARM

POWER AMP

S-CD: +34Bs

A-b



A-a A-b

A

B

C

D

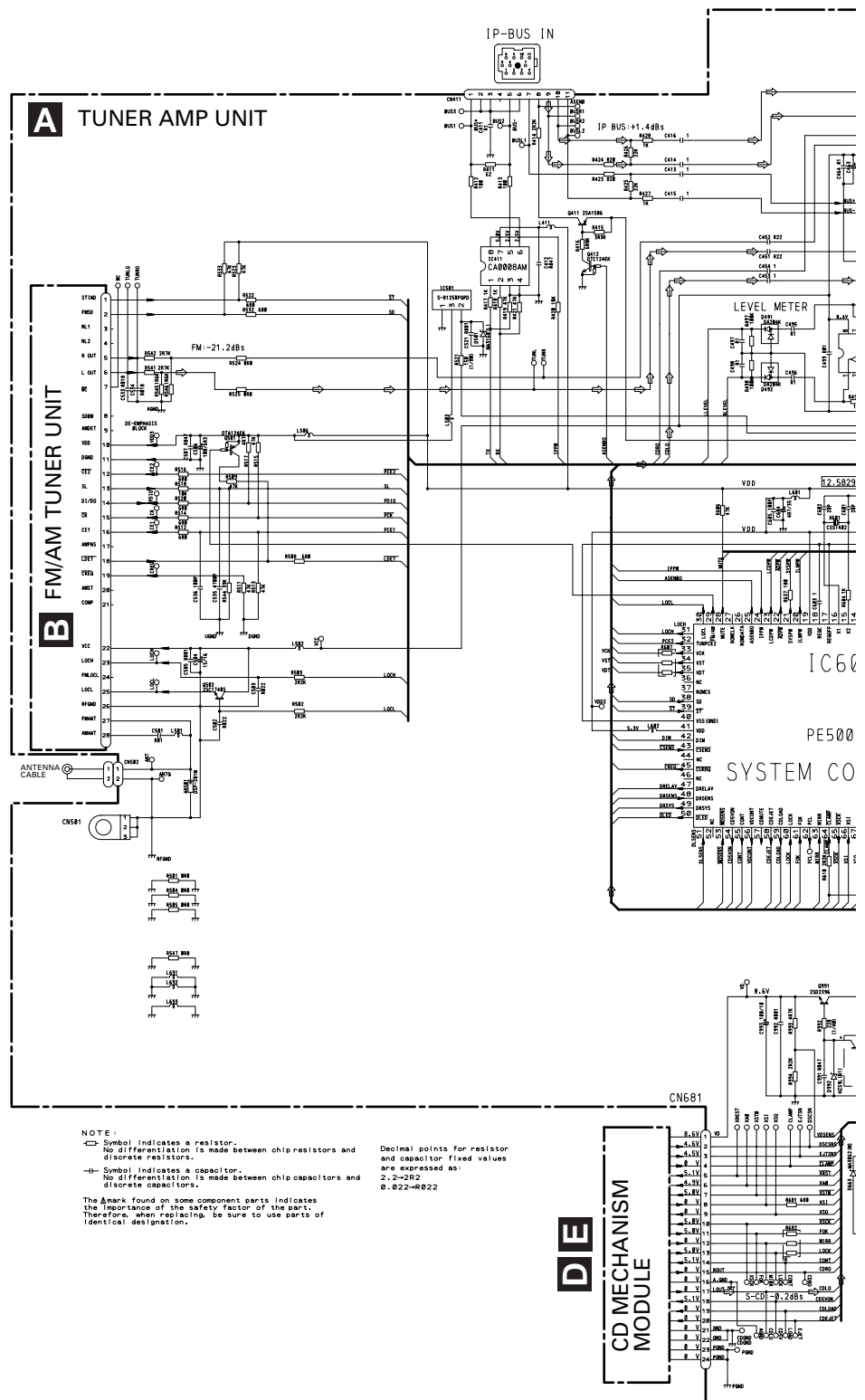
KEYBOARD UNIT

A-b

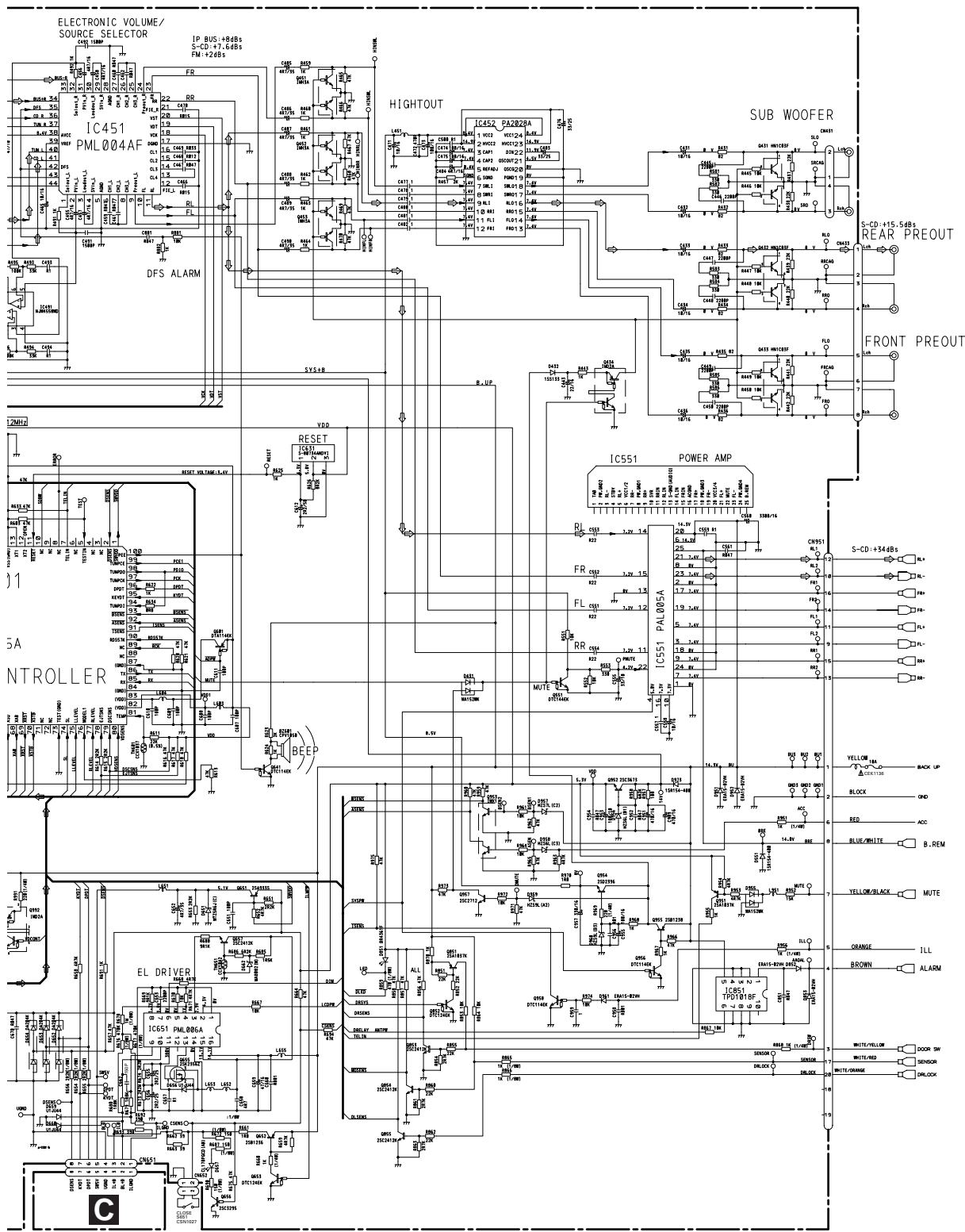
B

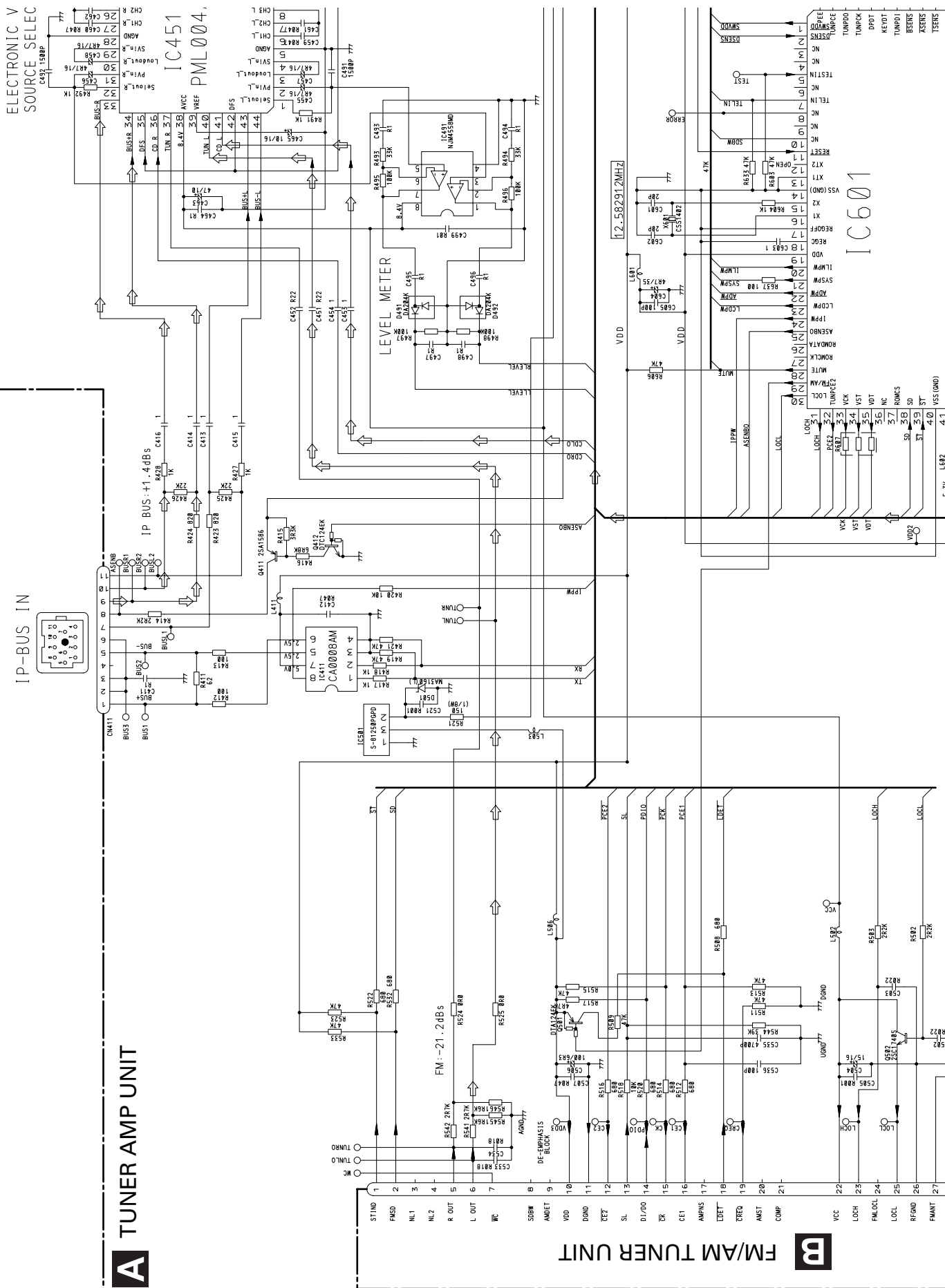
3.5 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)(DEH-P7050/ES)

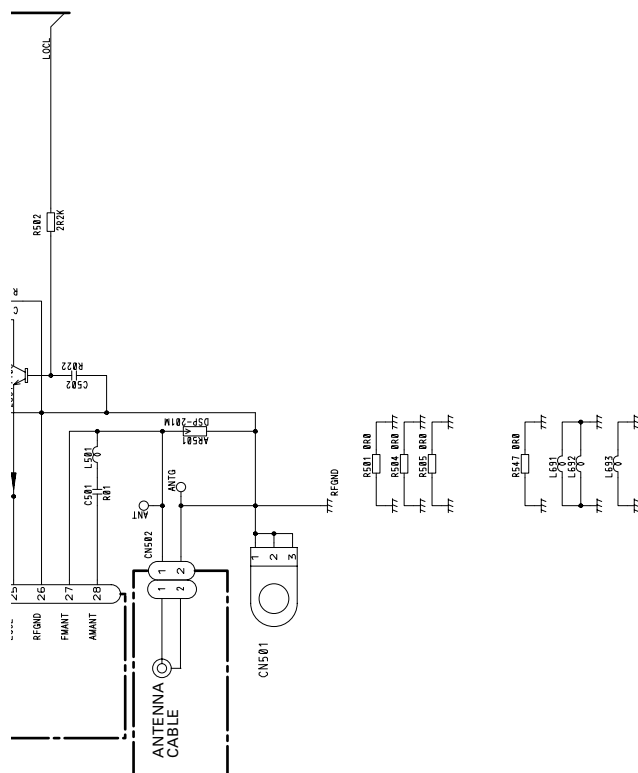
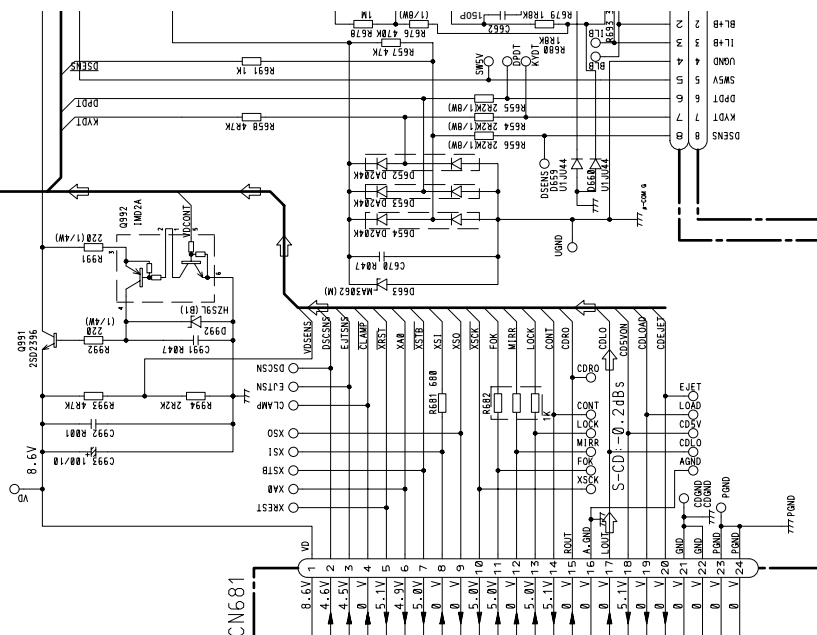
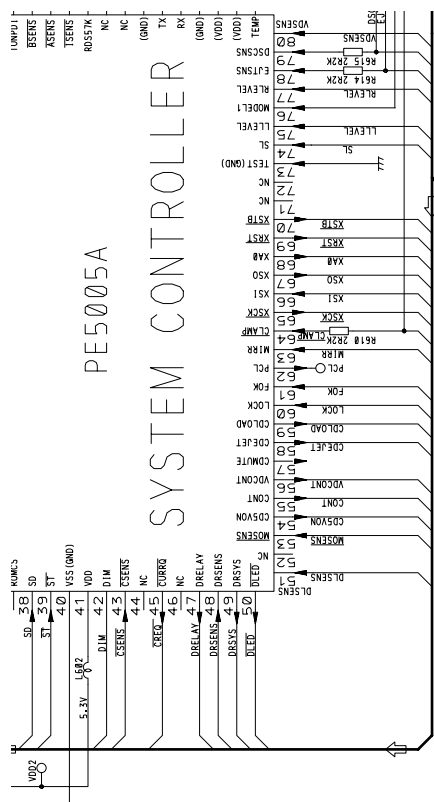
A-a





A-b







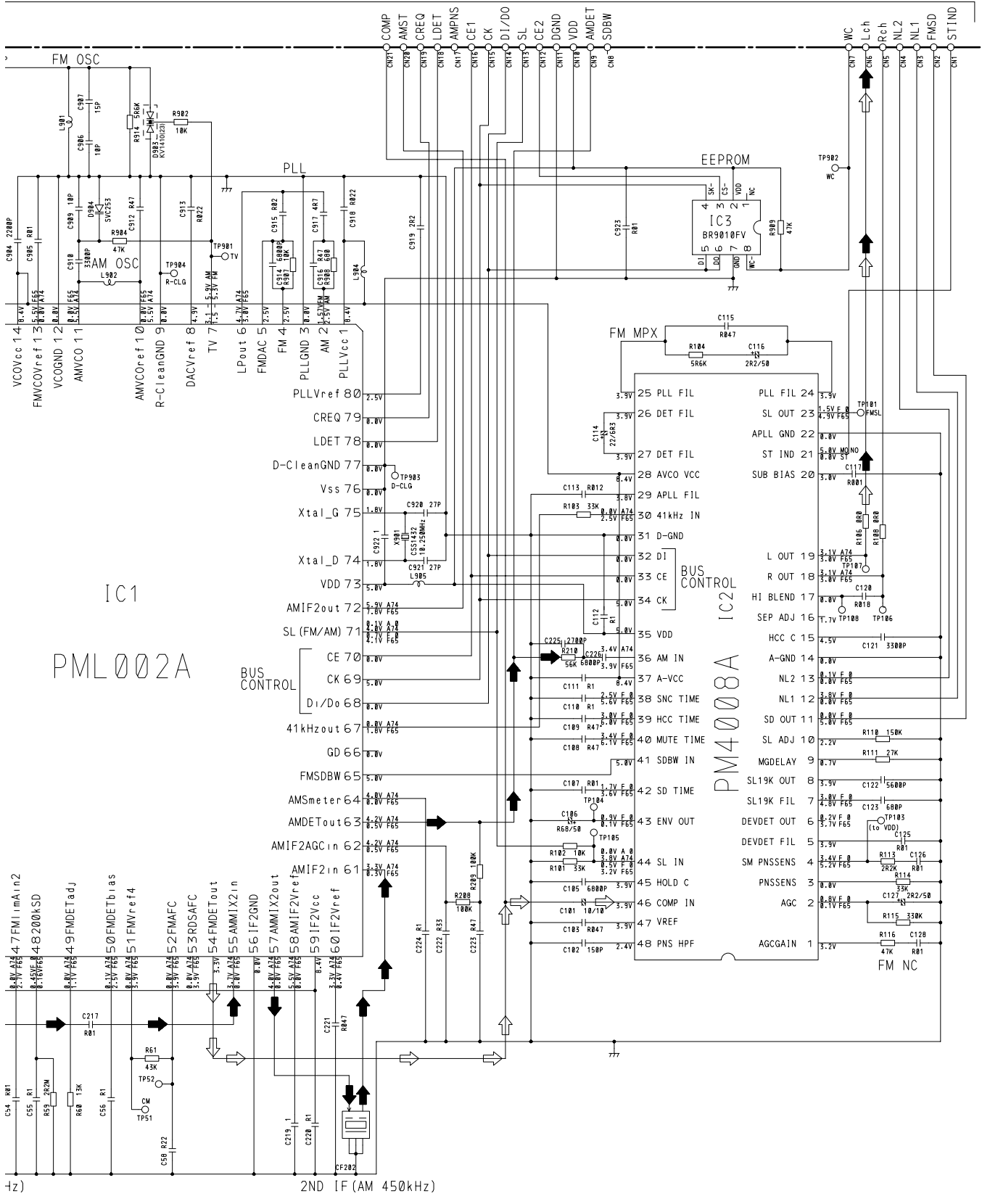
NOTE :

	Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.	Decimal points for resistor and capacitor fixed values are expressed as: 2.2-2R2 0.022-R022
	Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.	

The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

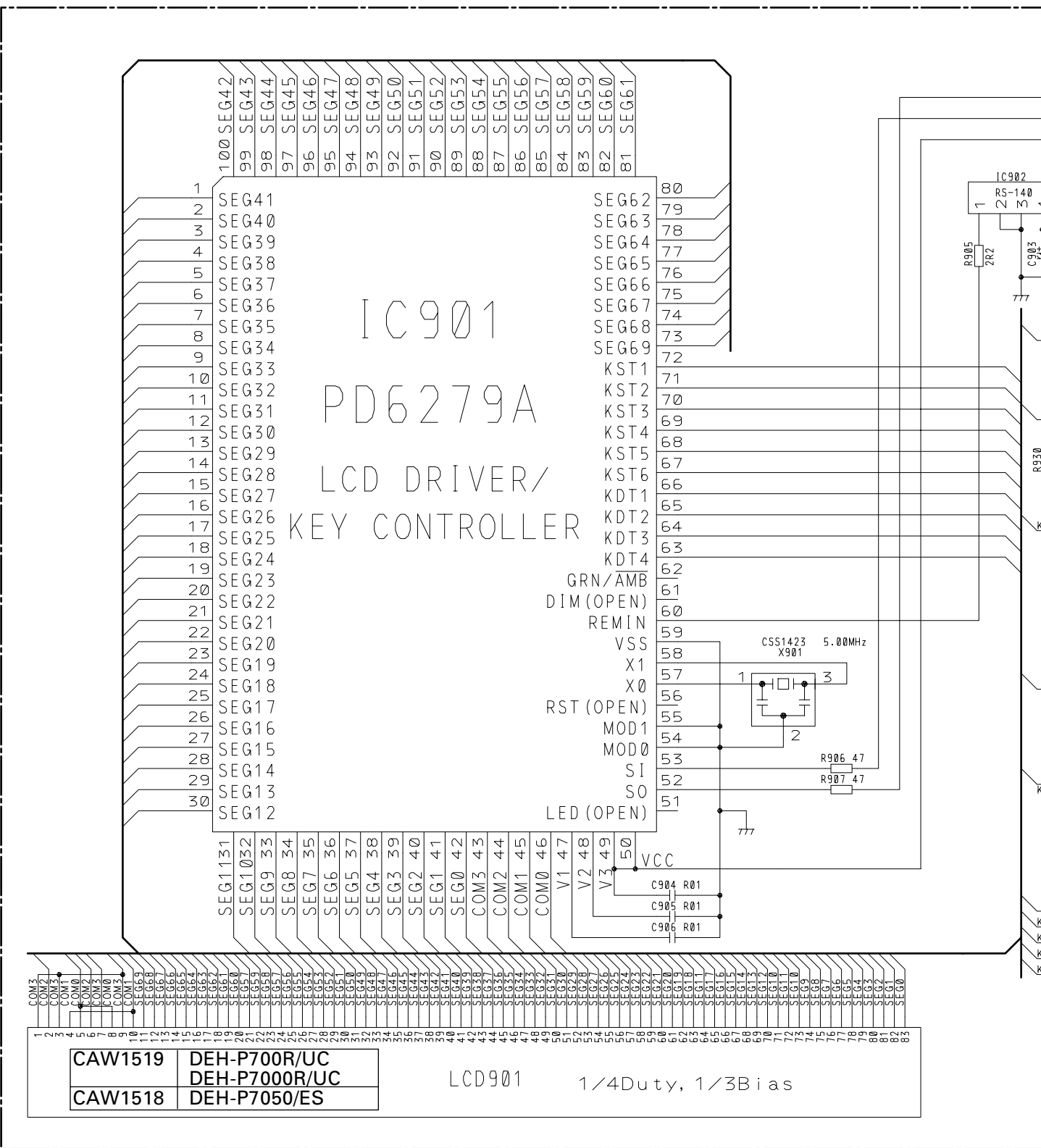
3.6 FM/AM TUNER UNIT

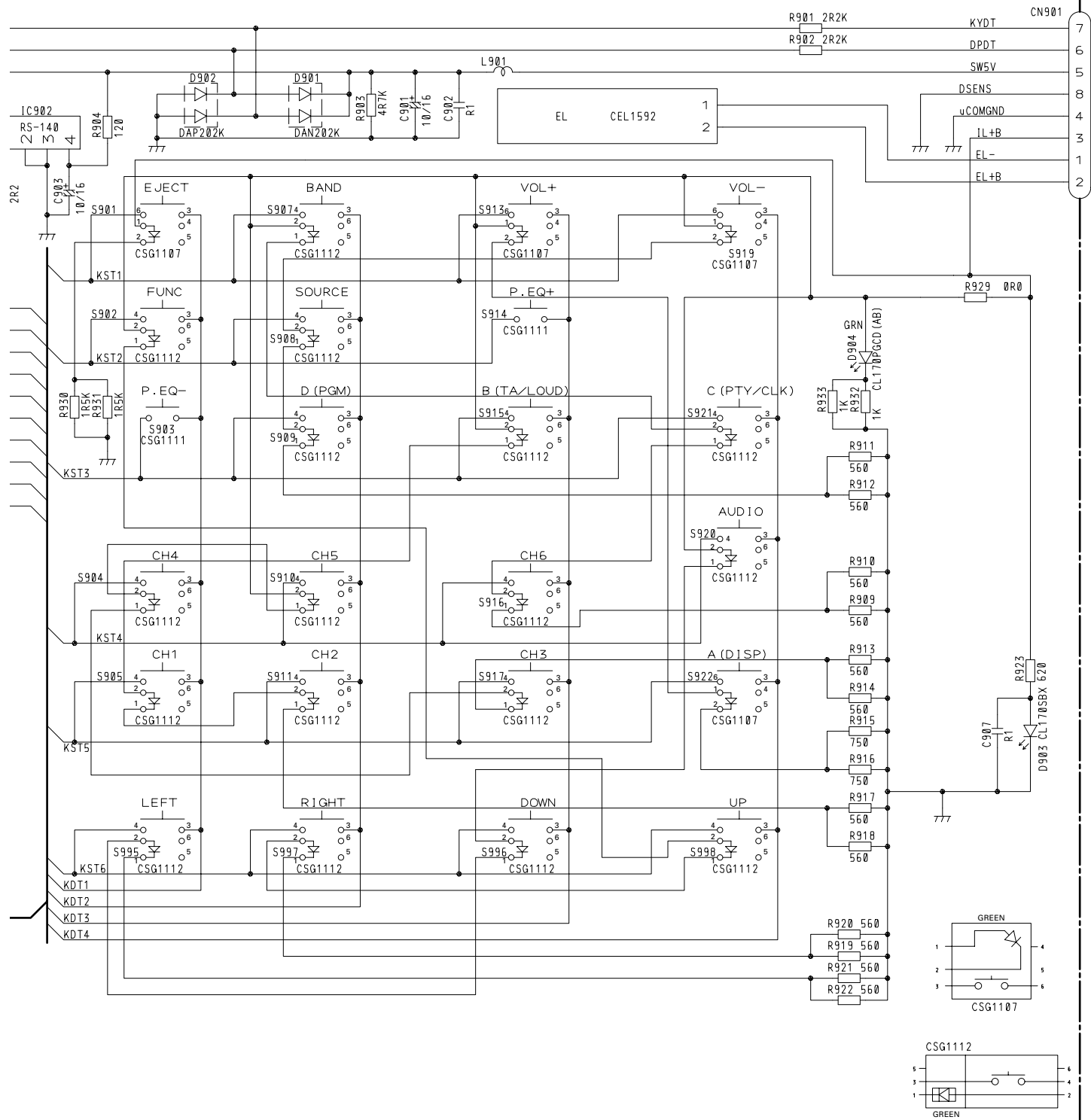




3.7 KEYBOARD UNIT

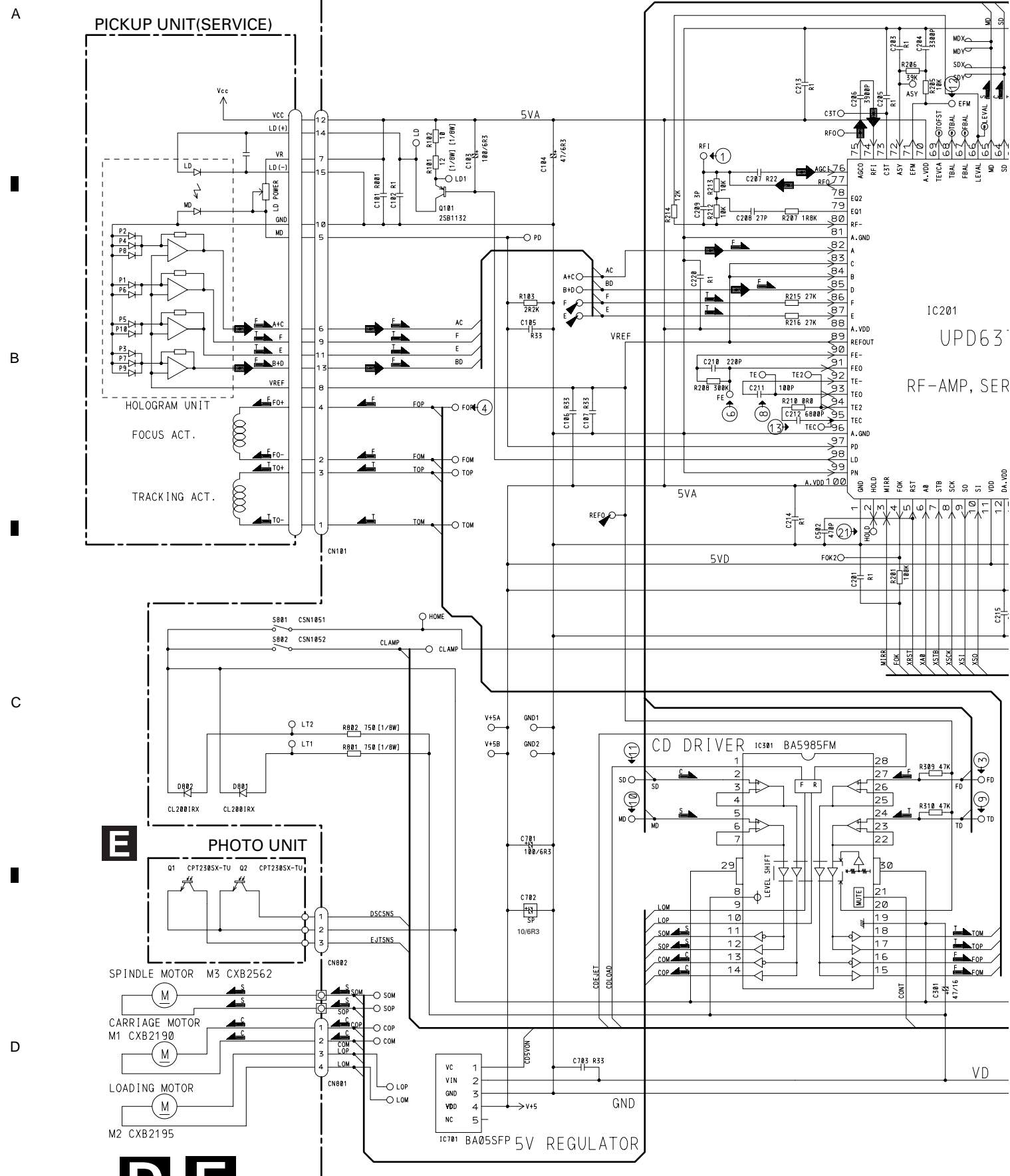
C KEYBOARD UNIT





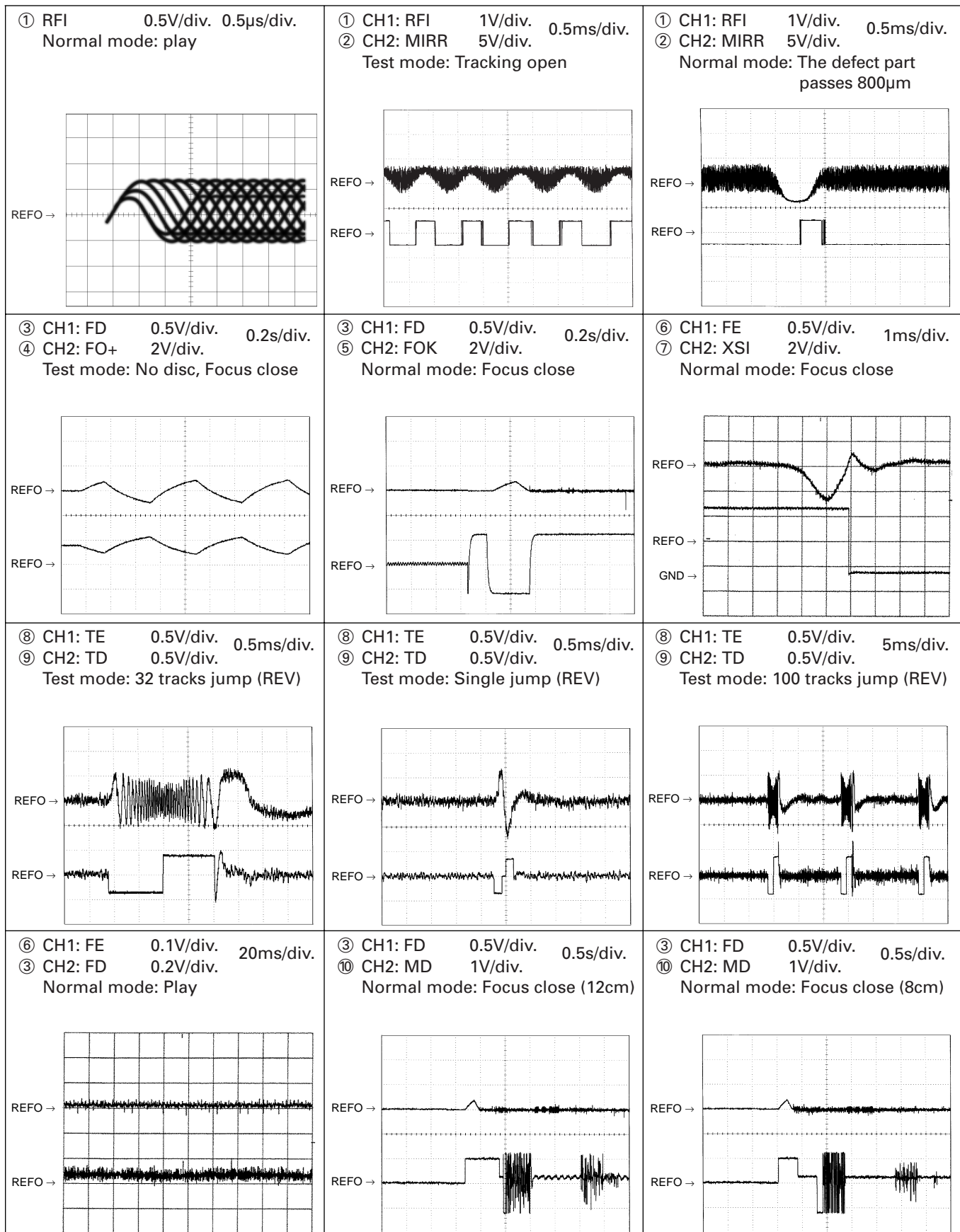
3.8 CD MECHANISM MODULE

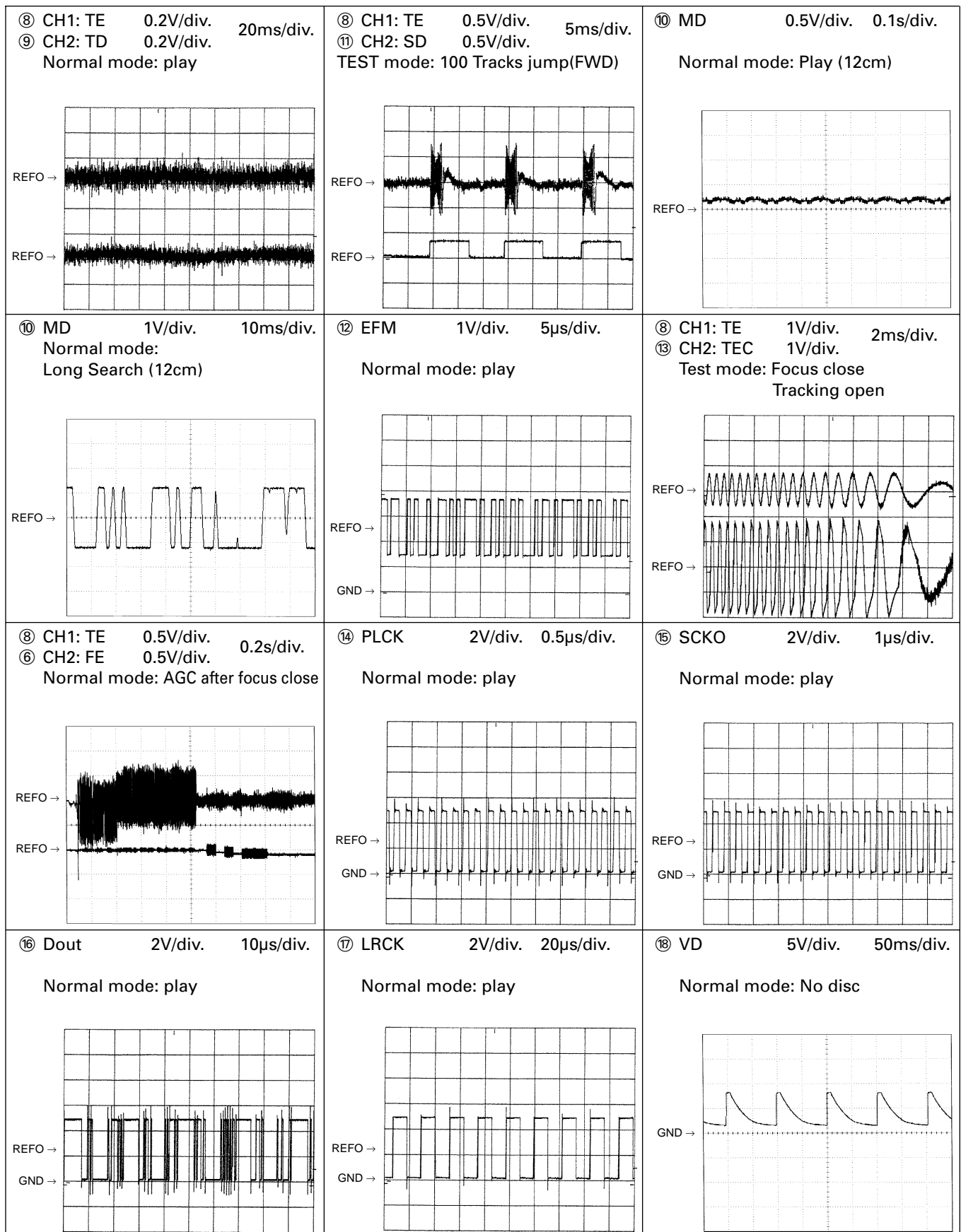
D COMPOUND UNIT



Note:1. The encircled numbers denote measuring pointes in the circuit diagram.
2. Reference voltage
REFO:2.5V

● Waveforms





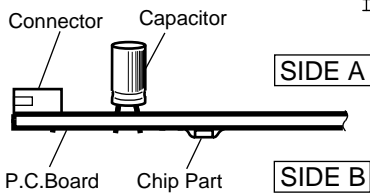
<div><div><div>⑰ CH1: R OUT 1V/div. 0.2ms/div.</div><div>⑳ CH2: L OUT 1V/div.</div><div>Normal mode: Play (1kHz 0dB)</div></div><div></div></div>	<div><div><div>⑥ CH1: FE 0.2V/div. 1ms/div.</div><div>③ CH2: FD 0.5V/div.</div><div>Normal mode: During AGC</div></div><div></div></div>	<div><div><div>⑧ CH1: TE 0.2V/div. 1ms/div.</div><div>⑨ CH2: TD 0.5V/div.</div><div>Normal mode: During AGC</div></div><div></div></div>
<div><div><div>① CH1: RFI 1V/div. 0.5ms/div.</div><div>② CH2: HOLD 5V/div.</div><div>Normal mode: The defect part passes 800μm(B.D)</div></div><div></div></div>	<div><div><div>③ CH1: FD 1V/div. 0.5ms/div.</div><div>② CH2: HOLD 5V/div.</div><div>Normal mode: The defect part passes 800μm(B.D)</div></div><div></div></div>	<div><div><div>⑨ CH1: TD 0.1V/div. 0.5ms/div.</div><div>② CH2: HOLD 5V/div.</div><div>Normal mode: The defect part passes 800μm(B.D)</div></div><div></div></div>

4. PCB CONNECTION DIAGRAM

4.1 TUNER AMP UNIT

NOTE FOR PCB DIAGRAMS

1. The parts mounted on this PCB include all necessary parts for several destination.
For further information for respective destinations, be sure to check with the schematic diagram.
2. Viewpoint of PCB diagrams



A TUNER AMP UNIT

IC, Q

IC551

Q411

IC851 IC852 Q551

Q855 Q434

Q854

Q951 Q957

Q958

Q953

Q852 Q853

Q952

Q502

Q954

Q955 Q526

IC452 Q524

IC451 Q527

IC501

Q652

Q525

Q528

Q991

Q656

IC602

IC701

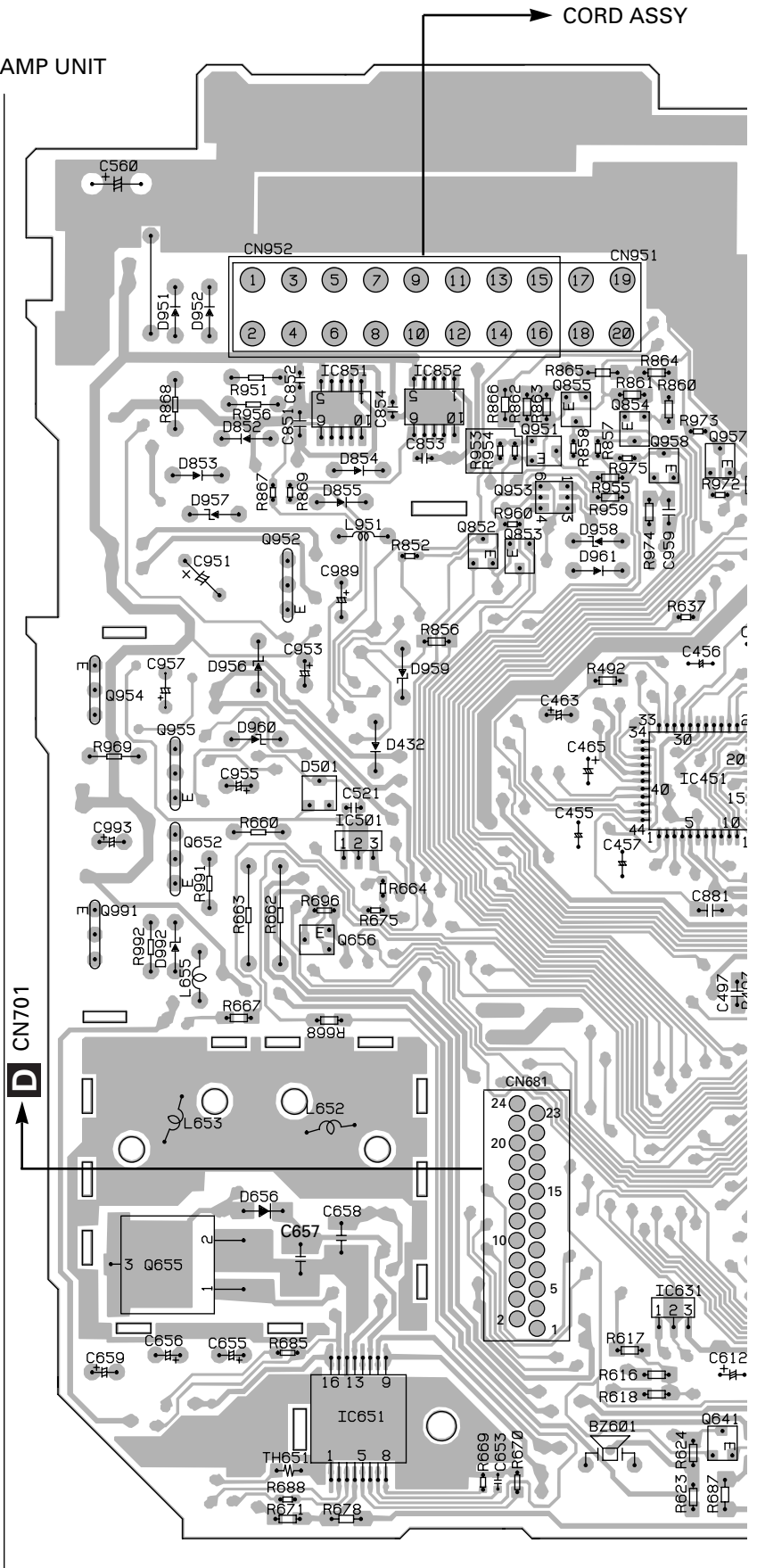
Q651

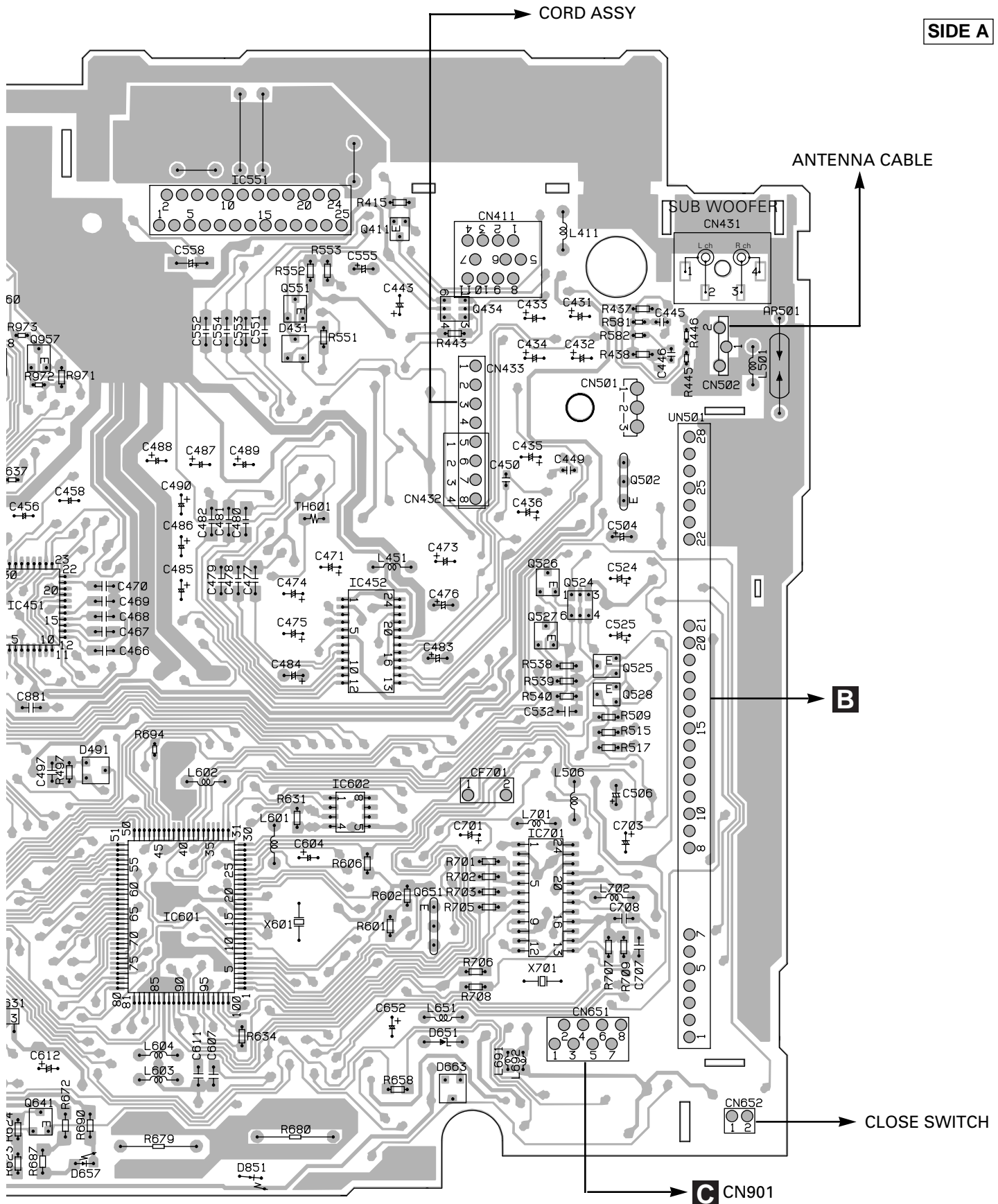
IC601

Q655

IC631

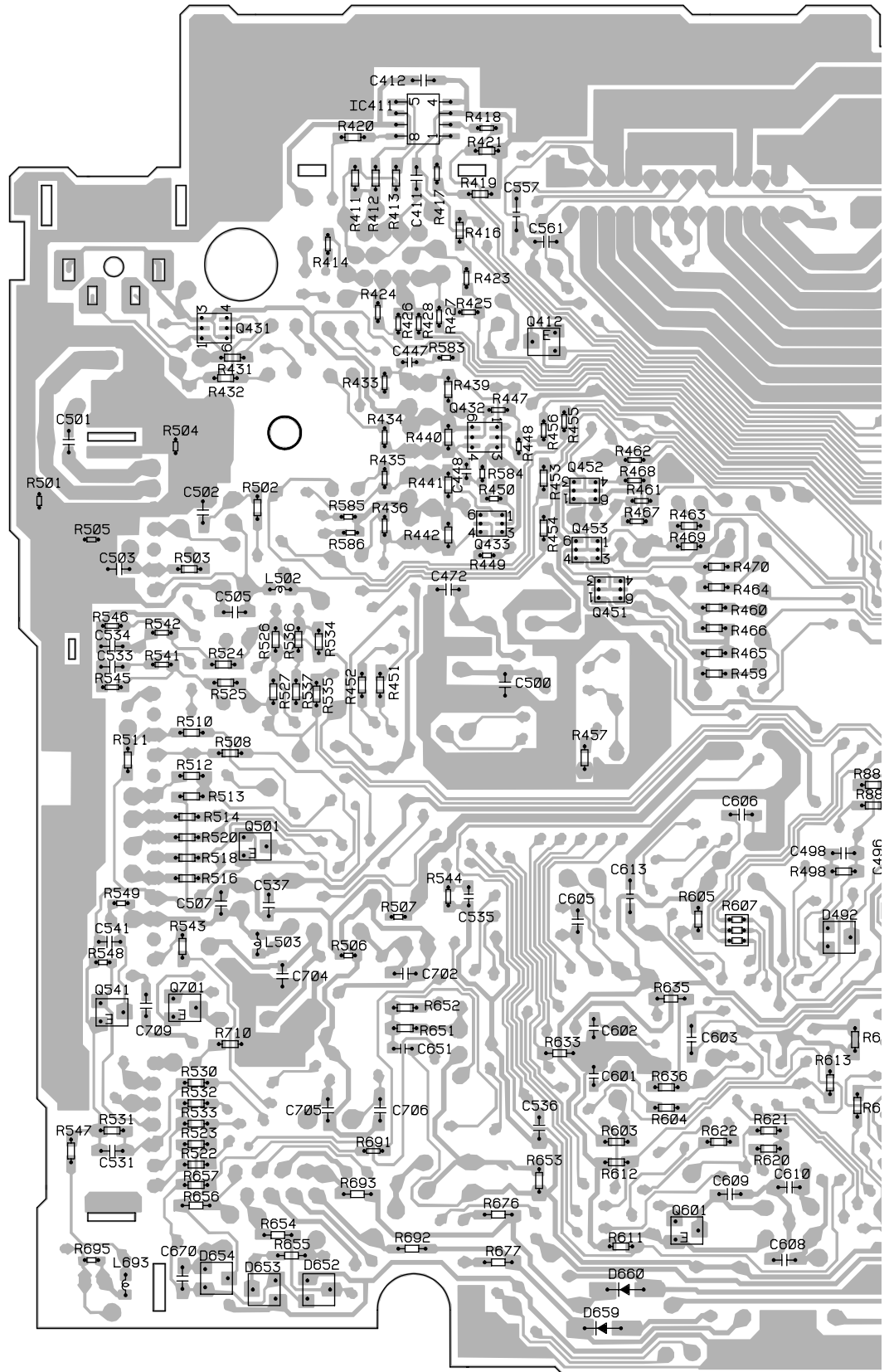
IC651 Q641



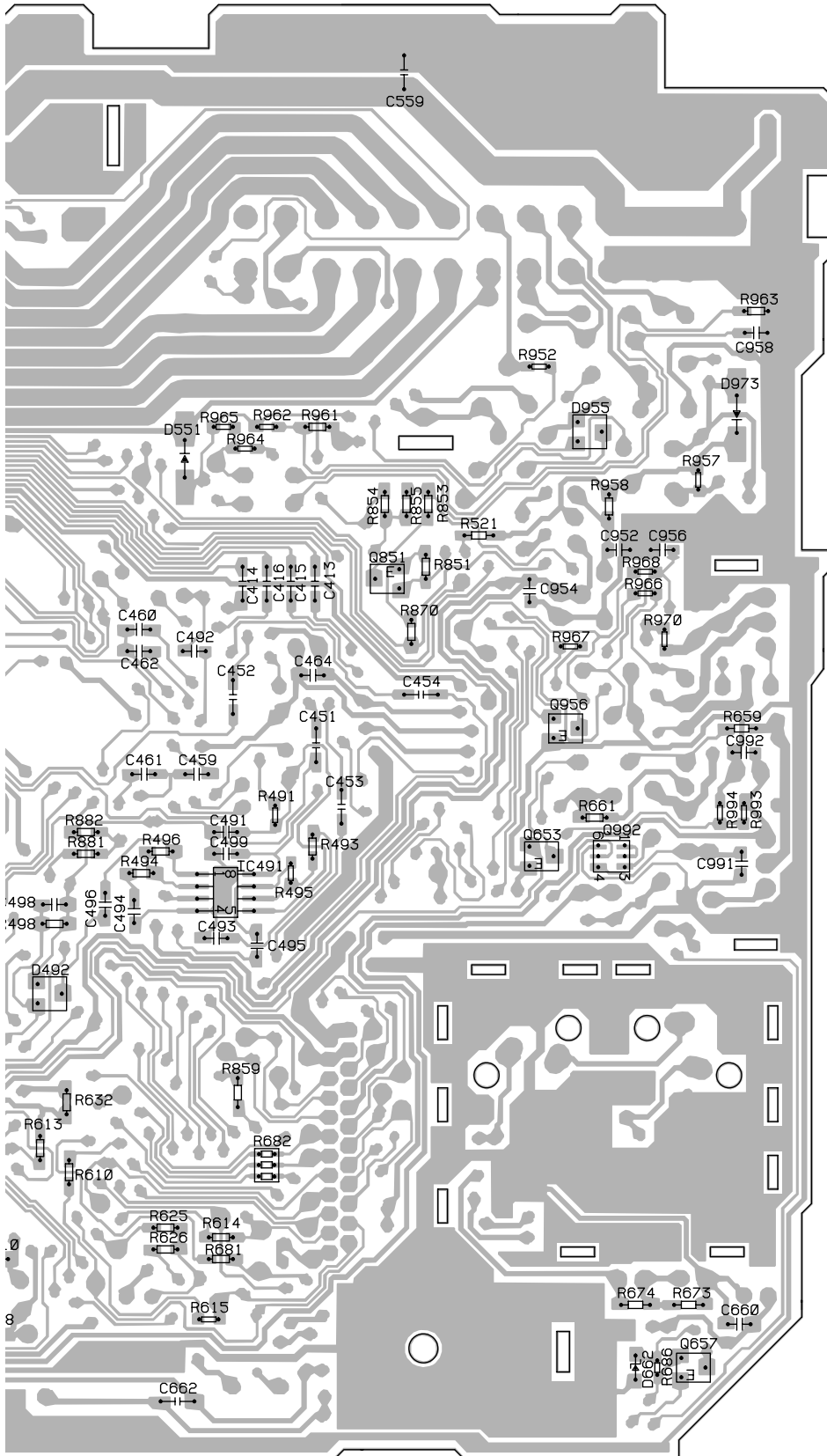


A

A TUNER AMP UNIT



SIDE B



IC, Q

IC411

Q431	Q412
------	------

Q432

Q452

Q453	Q851
Q433	

Q451

Q956

Q653	Q992
------	------

Q501	IC491
------	-------

Q541	Q701
------	------

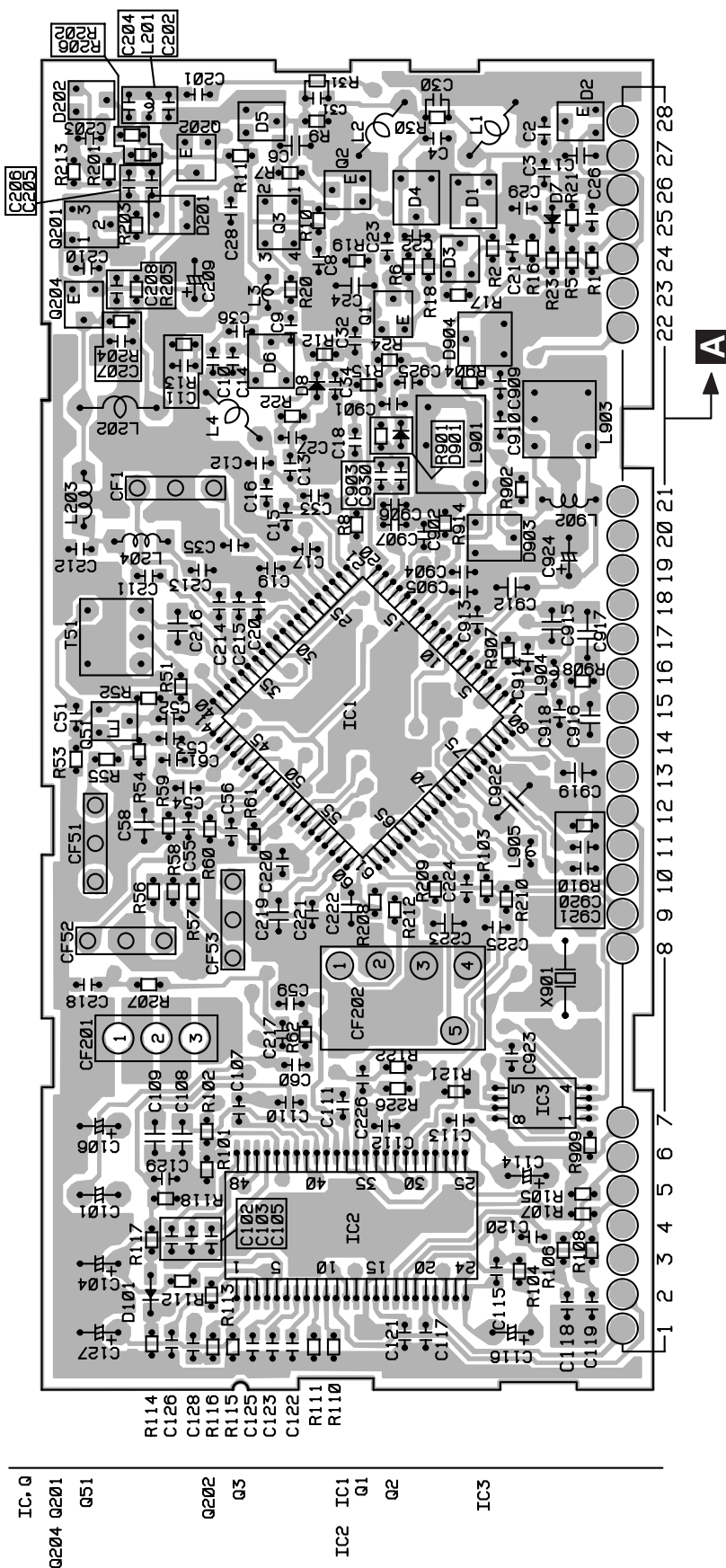
Q601

Q657

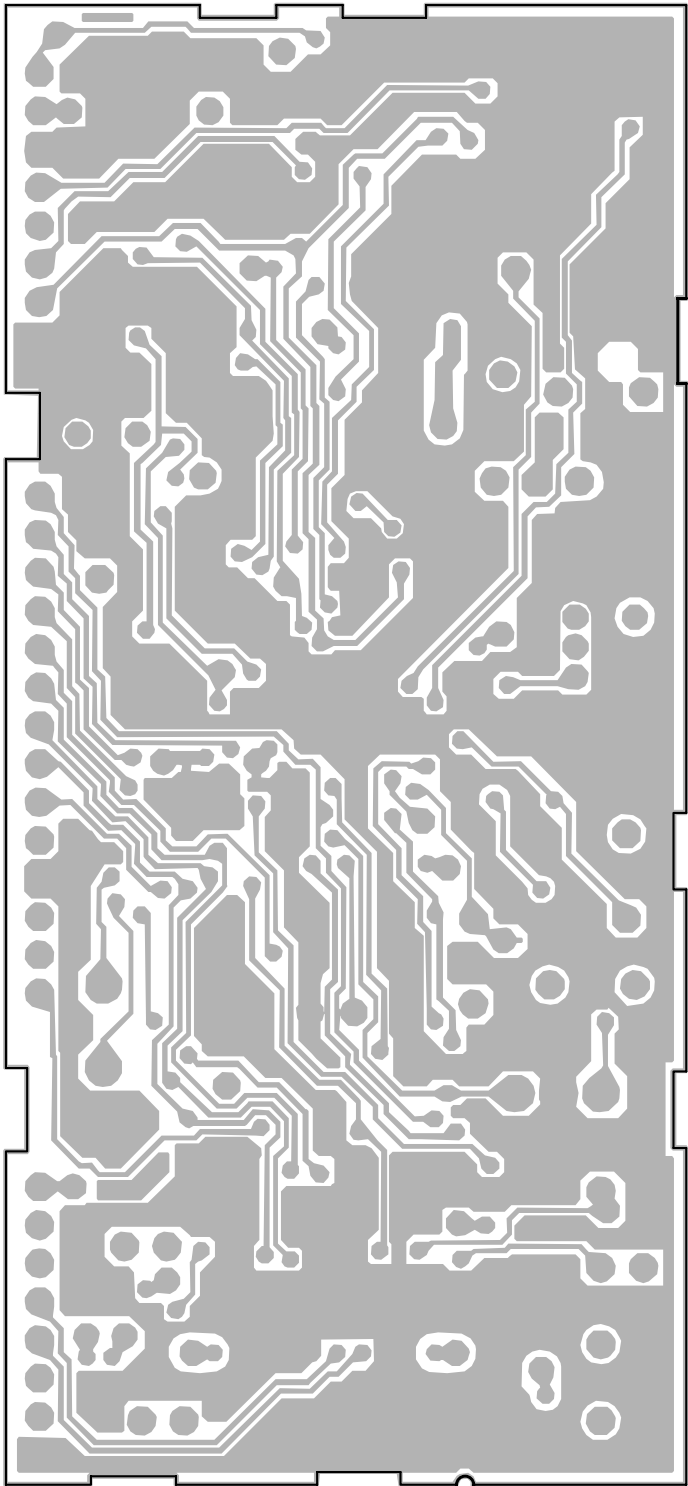
4.2 FM/AM TUNER UNIT

SIDE A

B FM/AM TUNER UNIT



SIDE B



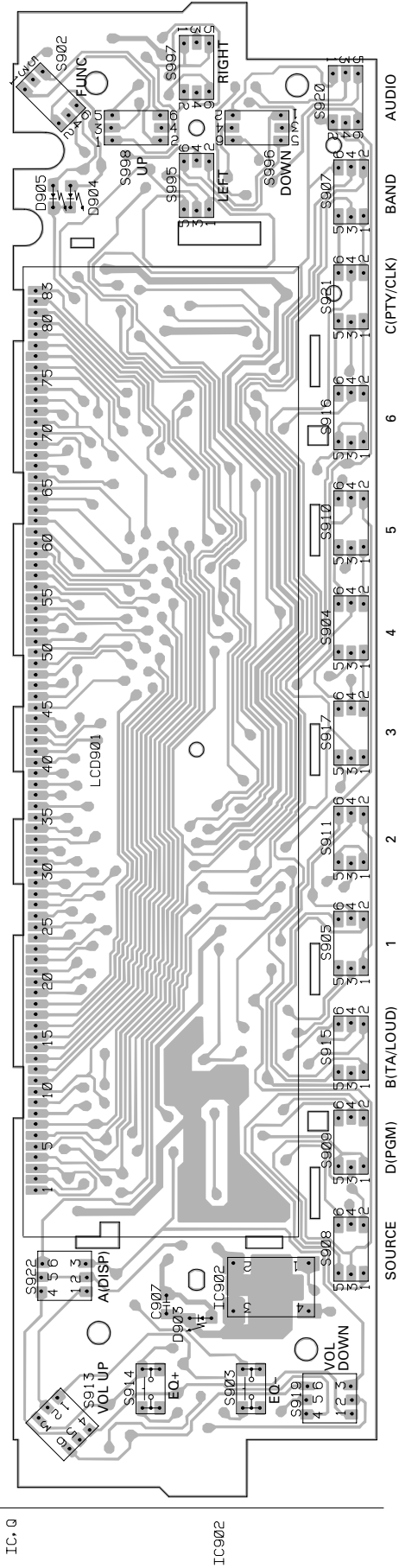
B FM/AM TUNER UNIT



4.3 KEYBOARD UNIT

SIDE A

C KEYBOARD UNIT



A

B

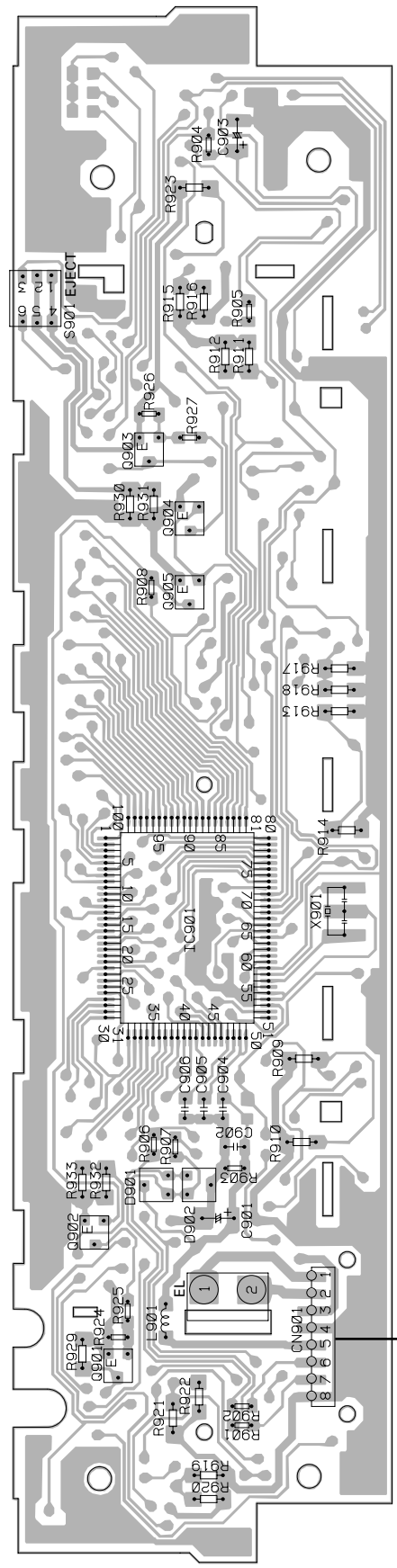
C

D

C KEYBOARD UNIT

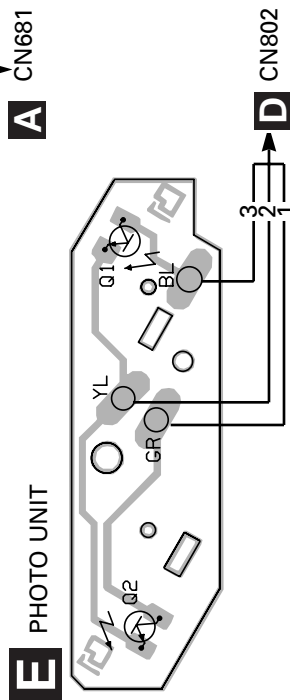
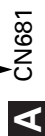
IC, Q
Q902
Q901
Q903
Q905
Q904
IC901

SIDE B



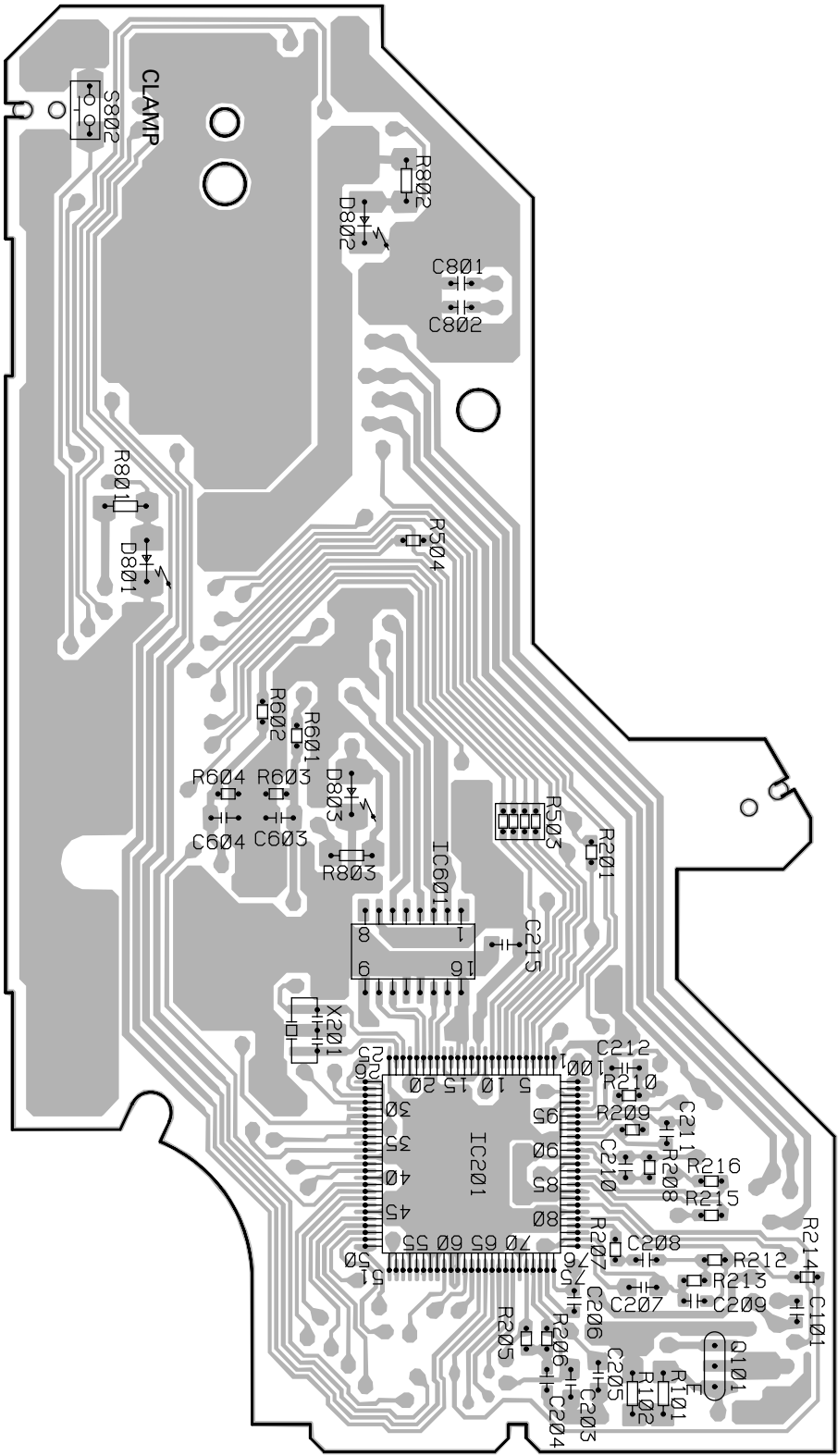
A CN651

SIDE A



SIDE B

D COMPOUND UNIT



5. ELECTRICAL PARTS LIST

NOTES:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/○S○○○○J,RS1/○○S○○○○J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

====Circuit Symbol and No.====Part Name	Part No.	====Circuit Symbol and No.====Part Name	Part No.
A Unit Number : CWM6188 Unit Name : Tuner Amp Unit(DEH-P700R/UC)		D 491 Diode	DA204K
		D 492 Diode	DA204K
		D 501 Diode	MA3160(L)
		D 551 Diode	1SR154-400
		D 651 Diode	MTZ5R6J(C)
MISCELLANEOUS		D 652 Diode	DA204K
IC 411 IC	CA0008AM	D 653 Diode	DA204K
IC 451 IC	PML004AF	D 654 Diode	DA204K
IC 452 IC	PA2028A	D 656 Diode	U1JU44
IC 491 IC	NJM4558MD	D 657 LED	CL170PGCD(AB)
IC 501 IC	S-81250PGPD		
IC 551 IC	PAL005A	D 659 Diode	U1JU44
IC 601 IC	PE5004B	D 660 Diode	U1JU44
IC 631 IC	S-80734ANDYI	D 662 Diode	MA8082(M)
IC 651 IC	PML006A	D 663 Diode	MA3062(M)
IC 701 IC	PM4009A	D 851 LED	BR4361F
IC 851 IC	TPD1018F	D 852 Diode	ERA15-02VH
IC 852 IC	TPD1018F	D 853 Diode	ERA15-02VH
Q 411 Transistor	2SA1586	D 854 Diode	ERA15-02VH
Q 412 Transistor	DTC124EK	D 855 Diode	ERA15-02VH
Q 431 Transistor	HN1C03F	D 951 Diode	ERA15-02VH
Q 432 Transistor	HN1C03F	D 952 Diode	ERA15-02VH
Q 433 Transistor	HN1C03F	D 955 Diode	MA152WK
Q 434 Transistor	IMD2A	D 956 Diode	HZS6L(B1)
Q 451 Transistor	IMH3A	D 957 Diode	HZS7L(C2)
Q 452 Transistor	IMH3A	D 958 Diode	HZS6L(C3)
Q 453 Transistor	IMH3A		
Q 501 Transistor	DTA124EK	D 959 Diode	HZS9L(A2)
Q 502 Transistor	2SC1740S	D 960 Diode	HZS9L(B3)
Q 551 Transistor	DTC144EK	D 961 Diode	ERA15-02VH
Q 601 Transistor	DTA114EK	D 973 Diode	1SR154-400
		D 992 Diode	HZS9L(B1)
Q 641 Transistor	DTC114EK	L 411 Inductor	LAU3R3J
Q 651 Transistor	2SA933S	L 451 Ferri-Inductor	LAU101K
Q 652 Transistor	2SB1236	L 501 Ferri-Inductor	LAU4R7K
Q 653 Transistor	DTC124EK	L 502 Inductor	CTF1399
Q 655 FET	2SK2356Z	L 503 Inductor	CTF1399
Q 656 Transistor	2SC3295		
Q 657 Transistor	2SC2412K	L 601 Inductor	LAU100K
Q 701 Transistor	DTA124EK	L 602 Ferri-Inductor	LAU2R2K
Q 851 Transistor	2SA1037K	L 603 Ferri-Inductor	LAU2R2K
Q 852 Transistor	DTC124EK	L 604 Ferri-Inductor	LAU2R2K
		L 651 Ferri-Inductor	LAU101K
Q 853 Transistor	2SC2412K		
Q 854 Transistor	2SC2412K	L 652 Coil	CTH1228
Q 855 Transistor	2SC2412K	L 653 Coil	CTH1228
Q 951 Transistor	2SA1037K	L 655 Inductor	CTF1483
Q 952 Transistor	2SC3673	L 691 Inductor	CTF1399
		L 692 Inductor	CTF1399
Q 953 Transistor	IMX1		
Q 954 Transistor	2SD2396	L 693 Inductor	CTF1399
Q 955 Transistor	2SB1238	L 701 Ferri-Inductor	LAU101K
Q 956 Transistor	DTC114EK	L 702 Ferri-Inductor	LAU101K
Q 957 Chip Transistor	2SC2712	L 951 Ferri-Inductor	LAU2R2K
		TH 601 Thermistor	CCX1037
Q 958 Transistor	DTC114EK		
Q 991 Transistor	2SD2396	TH 651 Posistor	CCX1042
Q 992 Transistor	IMD2A	CF 701 Filter	CTF1071
D 431 Diode	MA152WK	X 601 Radiator 12.58291MHz	CSS1402
D 432 Diode	1SS133	X 701 Crystal Resonator 3.648MHz	CSS1447
			FM/AM Tuner Unit
			CWE1501

====Circuit Symbol and No.==Part Name	Part No.	====Circuit Symbol and No.==Part Name	Part No.
BZ 601 Buzzer	CPV1050	R 514	RS1/10S681J
AR 501	DSP-201M	R 515	RS1/10S473J
		R 516	RS1/10S681J
RESISTORS		R 517	RS1/10S472J
		R 518	RS1/10S103J
R 411	RS1/10S620J	R 520	RS1/10S681J
R 412	RS1/10S101J	R 521	RS1/8S151J
R 413	RS1/10S101J	R 522	RS1/10S681J
R 414	RS1/10S222J	R 523	RS1/10S473J
R 415	RS1/10S332J	R 524	RS1/10S0R0J
R 416	RS1/10S682J	R 525	RS1/10S0R0J
R 417	RS1/10S102J	R 532	RS1/10S681J
R 418	RS1/10S102J	R 533	RS1/10S473J
R 419	RS1/10S473J	R 541	RS1/10S272J
R 420	RS1/10S103J	R 542	RS1/10S272J
R 421	RS1/10S473J	R 544	RS1/10S393J
R 423	RS1/10S821J	R 545	RS1/10S162J
R 424	RS1/10S821J	R 546	RS1/10S162J
R 425	RS1/10S223J	R 547	RS1/10S0R0J
R 426	RS1/10S223J	R 551	RS1/10S103J
R 427	RS1/10S102J	R 552	RS1/10S103J
R 428	RS1/10S102J	R 553	RS1/10S331J
R 431	RS1/10S820J	R 581	RS1/16S331J
R 432	RS1/10S820J	R 582	RS1/16S331J
R 433	RS1/10S820J	R 583	RS1/16S331J
R 434	RS1/10S820J	R 584	RS1/16S331J
R 435	RS1/10S820J	R 585	RS1/16S331J
R 436	RS1/10S820J	R 586	RS1/16S331J
R 437	RS1/10S223J	R 603	RS1/10S473J
R 438	RS1/10S223J	R 604	RS1/10S102J
R 439	RS1/10S223J	R 606	RS1/10S473J
R 440	RS1/10S223J	R 607	RA3C102J
R 441	RS1/10S223J	R 610	RS1/10S222J
R 442	RS1/10S223J	R 611	RN1/10SE2202D
R 443	RS1/10S102J	R 612	RS1/10S473J
R 445	RS1/16S103J	R 613	RS1/10S473J
R 446	RS1/16S103J	R 614	RS1/10S222J
R 447	RS1/10S103J	R 615	RS1/10S222J
R 448	RS1/16S103J	R 616	RS1/10S473J
R 449	RS1/16S103J	R 617	RS1/10S473J
R 450	RS1/16S103J	R 618	RS1/10S473J
R 457	RS1/10S203J	R 622	RS1/10S102J
R 459	RS1/10S102J	R 623	RS1/10S202J
R 460	RS1/10S102J	R 624	RS1/10S102J
R 461	RS1/10S102J	R 625	RS1/10S102J
R 462	RS1/10S102J	R 626	RS1/10S822J
R 463	RS1/10S102J	R 633	RS1/8S473J
R 464	RS1/10S102J	R 634	RS1/10S0R0J
R 465	RS1/10S473J	R 637	RS1/16S101J
R 466	RS1/10S473J	R 651	RS1/10S222J
R 467	RS1/10S473J	R 652	RS1/10S472J
R 468	RS1/10S473J	R 653	RS1/10S222J
R 469	RS1/10S473J	R 654	RS1/8S222J
R 470	RS1/10S473J	R 655	RS1/8S222J
R 491	RS1/10S102J	R 656	RS1/8S222J
R 492	RS1/10S102J	R 657	RS1/10S473J
R 493	RS1/10S333J	R 658	RS1/10S472J
R 494	RS1/10S333J	R 659	RS1/8S472J
R 495	RS1/10S104J	R 660	RD1/4PU102J
R 496	RS1/10S104J	R 661	RS1/10S1R0J
R 497	RS1/10S104J	R 662	RD1/2PM390J
R 498	RS1/10S104J	R 663	RD1/2PM390J
R 502	RS1/10S222J	R 664	RS1/16S473J
R 503	RS1/10S222J	R 667	RS1/10S103J
R 505	RS1/16S0R0J	R 668	RS1/10S472J
R 508	RS1/10S681J	R 669	RS1/16S912J
R 509	RS1/10S473J	R 670	RS1/10S103J
R 511	RS1/10S473J	R 671	RS1/10S472J
R 512	RS1/10S681J	R 672	RS1/8S151J
R 513	RS1/10S473J	R 673	RS1/8S225J

DEH-P700R,P7000R,P7050

====Circuit Symbol and No.==Part Name	Part No.	====Circuit Symbol and No.==Part Name	Part No.
R 674	RS1/8S225J	R 967	RS1/10S102J
R 675	RS1/16S473J	R 968	RS1/10S102J
R 676	RS1/8S474J	R 969	RD1/4PU221J
R 677	RS1/8S474J	R 970	RS1/10S1R0J
R 678	RS1/8S105J	R 971	RS1/10S473J
R 679	RD1/2PM182J	R 972	RS1/16S103J
R 680	RD1/2PM182J	R 973	RS1/16S473J
R 681	RS1/10S681J	R 974	RS1/10S103J
R 682	RA3C102J	R 975	RS1/16S473J
R 685	RS1/10S152J	R 991	RD1/4PU221J
R 686	RS1/16S622J	R 992	RD1/4PU221J
R 687	RS1/8S151J	R 993	RS1/10S472J
R 688	RS1/16S912J	R 994	RS1/10S222J
R 690	RS1/8S151J		
R 691	RS1/10S102J		
R 692	RS1/8S391J		
R 693	RS1/8S391J		
R 694	RS1/16S473J		
R 701	RS1/10S102J		
R 702	RS1/10S102J		
R 703	RS1/10S102J		
R 705	RS1/10S681J		
R 706	RS1/10S0R0J		
R 707	RS1/10S0R0J		
R 708	RS1/10S102J		
R 709	RS1/10S0R0J		
R 710	RS1/10S225J		
R 851	RS1/10S223J		
R 852	RS1/16S223J		
R 853	RS1/10S103J		
R 854	RS1/10S272J		
R 855	RS1/10S223J		
R 856	RS1/10S473J		
R 857	RS1/16S473J		
R 858	RS1/16S473J		
R 859	RS1/8S471J		
R 860	RS1/10S223J		
R 861	RS1/10S272J		
R 862	RS1/10S223J		
R 863	RS1/10S272J		
R 864	RS1/10S103J		
R 865	RS1/8S102J		
R 866	RS1/8S102J		
R 867	RS1/16S103J		
R 868	RD1/4PU102J		
R 869	RS1/16S103J		
R 870	RS1/10S102J		
R 881	RS1/10S103J		
R 882	RS1/10S102J		
R 951	RD1/4PU102J		
R 952	RS1/10S153J		
R 953	RS1/16S472J		
R 954	RS1/16S472J		
R 955	RS1/10S102J		
R 956	RD1/4PU102J		
R 957	RS1/10S101J		
R 958	RS1/10S622J		
R 959	RS1/10S473J		
R 960	RS1/16S473J		
R 961	RS1/10S103J		
R 962	RS1/10S473J		
R 963	RS1/10S472J		
R 964	RS1/10S103J		
R 965	RS1/10S473J		
R 966	RS1/10S473J		

====Circuit Symbol and No.==Part Name		Part No.	====Circuit Symbol and No.==Part Name		Part No.	
C	482	CKSYB105K16	C	702	CKSQYB104K25	
C	483	CEAL330M25	C	703	CEJA220M6R3	
C	484	CASAQ4R7M16	C	704	CKSQYB104K25	
C	485	CEAL4R7M35	C	705	CCSQCH270J50	
C	486	CEAL4R7M35	C	706	CCSQCH270J50	
C	487	CEAL4R7M35	C	707	CKSQYB104K25	
C	488	CEAL4R7M35	C	708	CKSQYB471K50	
C	489	CEAL4R7M35	C	709	CKSQYB471K50	
C	490	CEAL4R7M35	C	851	CKSQYB473K25	
C	491	CKLSQB152K50	C	853	CKSRYB473K16	
C	492	CKLSQB152K50	C	881	CKSQYB473K25	
C	493	CKSQYB104K25	C	951	470μF/16V	
C	494	CKSQYB104K25	C	952	CCH1325	
C	495	CKSQYB104K25	C	953	CKSQYB473K25	
C	496	CKSQYB104K25	C	954	CEJA101M10	
C	497	CKSQYB104K25	C	954	CKSQYB473K25	
C	498	CKSQYB104K25	C	955	CEJA101M16	
C	499	CKSQYB103K25	C	956	CKSQYB103K25	
C	500	CKSQYB104K25	C	957	CCH1326	
C	501	CKSQYB103K25	C	958	CKSQYB102K50	
C	502	CKSQYB223K50	C	959	CKSQYB105K16	
C	503	CKSQYB223K50	C	989	470μF/16V	
C	504	CASAQ150K16	C	991	CCH1183	
C	505	CKSQYB102K50	C	992	CKSQYB473K25	
C	506	CEAL101M6R3	C	993	CKSQYB102K50	
C	507	CKSQYB473K25	C	993	CEJA101M10	
C	521	CKSRYB102K50	<div><div>A</div><div>Unit Number : CWM6189 Unit Name : Tuner Amp Unit(DEH-P7000R/UC)</div></div>			
C	533	CKSQYB183K50				
C	534	CKSQYB183K50	MISCELLANEOUS			
C	535	CKSQYB472K50	IC	411	IC	CA0008AM
C	536	CCSQCH101J50	IC	451	IC	PML004AF
C	537	CCSQCH101J50	IC	452	IC	PA2028A
C	551	CKSYB224K25	IC	491	IC	NJM4558MD
C	552	CKSYB224K25	IC	501	IC	S-81250PGPD
C	553	CKSYB224K25	IC	551	IC	PAL005A
C	554	CKSYB224K25	IC	601	IC	PE5004B
C	555	CEJA330M10	IC	631	IC	S-80734ANDYI
C	557	CKSYB105K16	IC	651	IC	PML006A
C	558	10μF/16V	IC	701	IC	PM4009A
C	559	CKSYB104K50	IC	851	IC	TPD1018F
C	560	3300μF/16V	Q	411	Transistor	2SA1586
C	561	CCH1330	Q	412	Transistor	DTC124EK
C	601	CKSQYB473K25	Q	431	Transistor	HN1C03F
C	602	CCSQCH200J50	Q	432	Transistor	HN1C03F
C	603	CCSQCH200J50	Q	433	Transistor	HN1C03F
C	604	CKSYB105K16	Q	434	Transistor	IMD2A
C	605	CEAL4R7M35	Q	451	Transistor	IMH3A
C	606	CCSQCH101J50	Q	452	Transistor	IMH3A
C	607	CCSQCH101J50	Q	453	Transistor	IMH3A
C	608	CCSQCH101J50	Q	501	Transistor	DTA124EK
C	609	CCSQCH101J50	Q	502	Transistor	2SC1740S
C	610	CCSQCH101J50	Q	551	Transistor	DTC144EK
C	611	CCSQCH101J50	Q	601	Transistor	DTA114EK
C	612	CEAL2R2M50	Q	641	Transistor	DTC114EK
C	651	CCSQCH101J50	Q	651	Transistor	2SA933S
C	652	CEAL4R7M35	Q	652	Transistor	2SB1236
C	653	CKSRYB222K50	Q	653	Transistor	DTC124EK
C	655	2.2μF/25V	Q	655	FET	2SK2356Z
C	656	2.2μF/25V	Q	656	Transistor	2SC3295
C	657	0.1μF	Q	657	Transistor	2SC2412K
C	658	4.7μF	Q	701	Transistor	DTA124EK
C	659	CCG1089	Q	851	Transistor	2SA1037K
C	660	CEJA470M16	Q	852	Transistor	DTC124EK
C	662	CKSQYB102K50	Q	853	Transistor	2SC2412K
C	663	CCG1095	Q	951	Transistor	2SA1037K
C	670	CKSQYB473K25	Q	952	Transistor	2SC3673
C	701	CEJA220M6R3	Q	953	Transistor	IMX1
			Q	954	Transistor	2SD2396
			Q	955	Transistor	2SB1238

DEH-P700R,P7000R,P7050

====Circuit Symbol and No.==Part Name	Part No.	====Circuit Symbol and No.==Part Name	Part No.
Q 956 Transistor	DTC114EK	RESISTORS	
Q 957 Chip Transistor	2SC2712		
Q 958 Transistor	DTC114EK	R 411	RS1/10S620J
Q 991 Transistor	2SD2396	R 412	RS1/10S101J
Q 992 Transistor	IMD2A	R 413	RS1/10S101J
		R 414	RS1/10S222J
D 431 Diode	MA152WK	R 415	RS1/10S332J
D 432 Diode	1SS133		
D 491 Diode	DA204K	R 416	RS1/10S682J
D 492 Diode	DA204K	R 417	RS1/10S102J
D 501 Diode	MA3160(L)	R 418	RS1/10S102J
		R 419	RS1/10S473J
D 551 Diode	1SR154-400	R 420	RS1/10S103J
D 651 Diode	MTZ5R6J(C)		
D 652 Diode	DA204K	R 421	RS1/10S473J
D 653 Diode	DA204K	R 423	RS1/10S821J
D 654 Diode	DA204K	R 424	RS1/10S821J
		R 425	RS1/10S223J
D 656 Diode	U1JU44	R 426	RS1/10S223J
D 657 LED	CL170PGCD(AB)		
D 659 Diode	U1JU44	R 427	RS1/10S102J
D 660 Diode	U1JU44	R 428	RS1/10S102J
D 662 Diode	MA8082(M)	R 431	RS1/10S820J
		R 432	RS1/10S820J
D 663 Diode	MA3062(M)	R 433	RS1/10S820J
D 851 LED	BR4361F		
D 852 Diode	ERA15-02VH	R 434	RS1/10S820J
D 853 Diode	ERA15-02VH	R 435	RS1/10S820J
D 951 Diode	ERA15-02VH	R 436	RS1/10S820J
		R 437	RS1/10S223J
D 952 Diode	ERA15-02VH	R 438	RS1/10S223J
D 955 Diode	MA152WK		
D 956 Diode	HZS6L(B1)	R 439	RS1/10S223J
D 957 Diode	HZS7L(C2)	R 440	RS1/10S223J
D 958 Diode	HZS6L(C3)	R 441	RS1/10S223J
		R 442	RS1/10S223J
D 959 Diode	HZS9L(A2)	R 443	RS1/10S102J
D 960 Diode	HZS9L(B3)		
D 961 Diode	ERA15-02VH	R 445	RS1/16S103J
D 973 Diode	1SR154-400	R 446	RS1/16S103J
D 992 Diode	HZS9L(B1)	R 447	RS1/10S103J
		R 448	RS1/16S103J
L 411 Inductor	LAU3R3J	R 449	RS1/16S103J
L 451 Ferri-Inductor	LAU101K		
L 501 Ferri-Inductor	LAU4R7K	R 450	RS1/16S103J
L 502 Inductor	CTF1399	R 457	RS1/10S203J
L 503 Inductor	CTF1399	R 459	RS1/10S102J
		R 460	RS1/10S102J
L 601 Inductor	LAU100K	R 461	RS1/10S102J
L 602 Ferri-Inductor	LAU2R2K		
L 603 Ferri-Inductor	LAU2R2K	R 462	RS1/10S102J
L 604 Ferri-Inductor	LAU2R2K	R 463	RS1/10S102J
L 651 Ferri-Inductor	LAU101K	R 464	RS1/10S102J
		R 465	RS1/10S473J
L 652 Coil	CTH1228	R 466	RS1/10S473J
L 653 Coil	CTH1228		
L 655 Inductor	CTF1483	R 467	RS1/10S473J
L 691 Inductor	CTF1399	R 468	RS1/10S473J
L 692 Inductor	CTF1399	R 469	RS1/10S473J
		R 470	RS1/10S473J
L 693 Inductor	CTF1399	R 491	RS1/10S102J
L 701 Ferri-Inductor	LAU101K		
L 702 Ferri-Inductor	LAU101K	R 492	RS1/10S102J
L 951 Ferri-Inductor	LAU2R2K	R 493	RS1/10S333J
TH 601 Thermistor	CCX1037	R 494	RS1/10S333J
		R 495	RS1/10S104J
TH 651 Posistor	CCX1042	R 496	RS1/10S104J
CF 701 Filter	CTF1071		
X 601 Radiator 12.58291MHz	CSS1402	R 497	RS1/10S104J
X 701 Crystal Resonator 3.648MHz	CSS1447	R 498	RS1/10S104J
FM/AM Tuner Unit	CWE1501	R 502	RS1/10S222J
		R 503	RS1/10S222J
BZ 601 Buzzer	CPV1050	R 505	RS1/16S0R0J
AR 501	DSP-201M		
		R 508	RS1/10S681J
		R 509	RS1/10S473J
		R 511	RS1/10S473J
		R 512	RS1/10S681J
		R 513	RS1/10S473J

====Circuit Symbol and No.==Part Name	Part No.	====Circuit Symbol and No.==Part Name	Part No.
R 514	RS1/10S681J	R 670	RS1/10S103J
R 515	RS1/10S473J	R 671	RS1/10S472J
R 516	RS1/10S681J	R 672	RS1/8S151J
R 517	RS1/10S472J	R 673	RS1/8S225J
R 518	RS1/10S103J	R 674	RS1/8S225J
R 520	RS1/10S681J	R 675	RS1/16S473J
R 521	RS1/8S151J	R 676	RS1/8S474J
R 522	RS1/10S681J	R 677	RS1/8S474J
R 523	RS1/10S473J	R 678	RS1/8S105J
R 524	RS1/10S0R0J	R 679	RD1/2PM182J
R 525	RS1/10S0R0J	R 680	RD1/2PM182J
R 532	RS1/10S681J	R 681	RS1/10S681J
R 533	RS1/10S473J	R 682	RA3C102J
R 541	RS1/10S272J	R 685	RS1/10S152J
R 542	RS1/10S272J	R 686	RS1/16S622J
R 544	RS1/10S393J	R 687	RS1/8S151J
R 545	RS1/10S162J	R 688	RS1/16S912J
R 546	RS1/10S162J	R 690	RS1/8S151J
R 547	RS1/10S0R0J	R 691	RS1/10S102J
R 551	RS1/10S103J	R 692	RS1/8S391J
R 552	RS1/10S103J	R 693	RS1/8S391J
R 553	RS1/10S331J	R 694	RS1/16S473J
R 581	RS1/16S331J	R 701	RS1/10S102J
R 582	RS1/16S331J	R 702	RS1/10S102J
R 583	RS1/16S331J	R 703	RS1/10S102J
R 584	RS1/16S331J	R 705	RS1/10S681J
R 585	RS1/16S331J	R 706	RS1/10S0R0J
R 586	RS1/16S331J	R 707	RS1/10S0R0J
R 603	RS1/10S473J	R 708	RS1/10S102J
R 604	RS1/10S102J	R 709	RS1/10S0R0J
R 606	RS1/10S473J	R 710	RS1/10S225J
R 607	RA3C102J	R 851	RS1/10S223J
R 610	RS1/10S222J	R 852	RS1/16S223J
R 611	RN1/10SE2202D	R 853	RS1/10S103J
R 612	RS1/10S473J	R 854	RS1/10S272J
R 614	RS1/10S222J	R 855	RS1/10S223J
R 615	RS1/10S222J	R 856	RS1/10S473J
R 616	RS1/10S473J	R 857	RS1/16S473J
R 617	RS1/10S473J	R 858	RS1/16S473J
R 618	RS1/10S473J	R 859	RS1/8S471J
R 622	RS1/10S102J	R 867	RS1/16S103J
R 623	RS1/10S202J	R 868	RD1/4PU102J
R 624	RS1/10S102J	R 870	RS1/10S102J
R 625	RS1/10S102J	R 881	RS1/10S103J
R 626	RS1/10S822J	R 882	RS1/10S102J
R 633	RS1/8S473J	R 951	RD1/4PU102J
R 634	RS1/10S0R0J	R 952	RS1/10S153J
R 637	RS1/16S101J	R 953	RS1/16S472J
R 651	RS1/10S222J	R 954	RS1/16S472J
R 652	RS1/10S472J	R 955	RS1/10S102J
R 653	RS1/10S222J	R 956	RD1/4PU102J
R 654	RS1/8S222J	R 957	RS1/10S101J
R 655	RS1/8S222J	R 958	RS1/10S622J
R 656	RS1/8S222J	R 959	RS1/10S473J
R 657	RS1/10S473J	R 960	RS1/16S473J
R 658	RS1/10S472J	R 961	RS1/10S103J
R 659	RS1/8S472J	R 962	RS1/10S473J
R 660	RD1/4PU102J	R 963	RS1/10S472J
R 661	RS1/10S1R0J	R 964	RS1/10S103J
R 662	RD1/2PM390J	R 965	RS1/10S473J
R 663	RD1/2PM390J	R 966	RS1/10S473J
R 664	RS1/16S473J	R 967	RS1/10S102J
R 667	RS1/10S103J	R 968	RS1/10S102J
R 668	RS1/10S472J	R 969	RD1/4PU221J
R 669	RS1/16S912J	R 970	RS1/10S1R0J

====Circuit Symbol and No.==Part Name	Part No.	====Circuit Symbol and No.==Part Name	Part No.
R 971	RS1/10S473J	C 487	CEAL4R7M35
R 972	RS1/16S103J	C 488	CEAL4R7M35
R 973	RS1/16S473J	C 489	CEAL4R7M35
R 974	RS1/10S103J	C 490	CEAL4R7M35
R 975	RS1/16S473J	C 491	CKLSQB152K50
R 991	RD1/4PU221J	C 492	CKLSQB152K50
R 992	RD1/4PU221J	C 493	CKSQYB104K25
R 993	RS1/10S472J	C 494	CKSQYB104K25
R 994	RS1/10S222J	C 495	CKSQYB104K25
		C 496	CKSQYB104K25
CAPACITORS		C 497	CKSQYB104K25
C 411	CKSQYB104K25	C 498	CKSQYB104K25
C 412	CKSQYB473K25	C 499	CKSQYB103K25
C 413	CKSYB105K16	C 500	CKSQYB104K25
C 414	CKSYB105K16	C 501	CKSQYB103K25
C 415	CKSYB105K16		
C 416	CKSYB105K16	C 502	CKSQYB223K50
C 431	CEJA100M16	C 503	CKSQYB223K50
C 432	CEJA100M16	C 504	CASQA150K16
C 433	CEJA100M16	C 505	CKSQYB102K50
C 434	CEJA100M16	C 506	CEAL101M6R3
C 435	CEJA100M16	C 507	CKSQYB473K25
C 436	CEJA100M16	C 521	CKSRYB102K50
C 443	CEJA220M16	C 533	CKSQYB183K50
C 445	CKLSRB222K50	C 534	CKSQYB183K50
C 446	CKLSRB222K50	C 535	CKSQYB472K50
C 447	CKLSRB222K50	C 536	CCSQCH101J50
C 448	CKLSRB222K50	C 537	CCSQCH101J50
C 449	CKLSRB222K50	C 551	CKSYB224K25
C 450	CKLSRB222K50	C 552	CKSYB224K25
C 451	CKSYB224K25	C 553	CKSYB224K25
C 452	CKSYB224K25	C 554	CKSYB224K25
C 453	CKSYB105K16	C 555	CEJA330M10
C 454	CKSYB105K16	C 557	CKSYB105K16
C 455	CEJANP4R7M16	C 558	CCH1219
C 456	CEJANP4R7M16	C 559	CKSYB104K50
C 457	CEJANP4R7M16	C 560	CCH1330
C 458	CEJANP4R7M16	C 561	CKSQYB473K25
C 459	CKSQYB473K25	C 601	CCSQCH200J50
C 460	CKSQYB473K25	C 602	CCSQCH200J50
C 461	CKSQYB473K25	C 603	CKSYB105K16
C 462	CKSQYB473K25	C 604	CEAL4R7M35
C 463	CEJA470M10	C 605	CCSQCH101J50
C 464	CKSQYB104K25	C 607	CCSQCH101J50
C 465	CEJA100M16	C 608	CCSQCH101J50
C 466	CKSQYB153K50	C 609	CCSQCH101J50
C 467	CKSQYB473K25	C 610	CCSQCH101J50
C 468	CKSQYB123K50	C 611	CCSQCH101J50
C 469	CKSQYB333K50	C 612	CEAL2R2M50
C 470	CKSQYB153K50	C 651	CCSQCH101J50
C 471	CEJA100M16	C 652	CEAL4R7M35
C 472	CKSQYB471K50	C 653	CKSRYB222K50
C 473	CEJA100M16	C 655	CCH1327
C 474	CEJA100M16	C 656	CCH1327
C 475	CEJA100M16	C 657	CCG1096
C 476	CEAL330M25	C 658	CCG1089
C 477	CKSYB105K16	C 659	CEJA470M16
C 478	CKSYB105K16	C 660	CKSQYB102K50
C 479	CKSYB105K16	C 662	CCG1095
C 480	CKSYB105K16	C 670	CKSQYB473K25
C 481	CKSYB105K16	C 701	CEJA220M6R3
C 482	CKSYB105K16	C 702	CKSQYB104K25
C 483	CEAL330M25	C 703	CEJA220M6R3
C 484	CASQA4R7M16	C 704	CKSQYB104K25
C 485	CEAL4R7M35	C 705	CCSQCH270J50
C 486	CEAL4R7M35	C 706	CCSQCH270J50

====Circuit Symbol and No.====Part Name	Part No.	====Circuit Symbol and No.====Part Name	Part No.
C 707	CKSQYB104K25	D 431 Diode	MA152WK
C 708	CKSQYB471K50	D 432 Diode	1SS133
C 709	CKSQYB471K50	D 491 Diode	DA204K
C 851	CKSQYB473K25	D 492 Diode	DA204K
C 881	CKSQYB473K25	D 501 Diode	MA3160(L)
C 951 470μF/16V	CCH1325	D 551 Diode	1SR154-400
C 952	CKSQYB473K25	D 651 Diode	MTZ5R6J(C)
C 953	CEJA101M10	D 652 Diode	DA204K
C 954	CKSQYB473K25	D 653 Diode	DA204K
C 955	CEJA101M16	D 654 Diode	DA204K
C 956	CKSQYB103K25	D 656 Diode	U1JU44
C 957 330μF/16V	CCH1326	D 657 LED	CL170PGCD(AB)
C 958	CKSQYB102K50	D 659 Diode	U1JU44
C 959	CKSQYB105K16	D 660 Diode	U1JU44
C 989 470μF/16V	CCH1183	D 662 Diode	MA8082(M)
C 991	CKSQYB473K25	D 663 Diode	MA3062(M)
C 992	CKSQYB102K50	D 851 LED	BR4361F
C 993	CEJA101M10	D 852 Diode	ERA15-02VH
		D 853 Diode	ERA15-02VH
		D 951 Diode	ERA15-02VH
		D 952 Diode	ERA15-02VH
		D 955 Diode	MA152WK
		D 956 Diode	HZS6L(B1)
		D 957 Diode	HZS7L(C2)
		D 958 Diode	HZS6L(C3)
		D 959 Diode	HZS9L(A2)
		D 960 Diode	HZS9L(B3)
		D 961 Diode	ERA15-02VH
		D 973 Diode	1SR154-400
		D 992 Diode	HZS9L(B1)
		L 411 Inductor	LAU3R3J
		L 451 Ferri-Inductor	LAU101K
		L 501 Ferri-Inductor	LAU4R7K
		L 502 Inductor	CTF1399
		L 503 Inductor	CTF1399
		L 601 Inductor	LAU100K
		L 602 Ferri-Inductor	LAU2R2K
		L 603 Ferri-Inductor	LAU2R2K
		L 604 Ferri-Inductor	LAU2R2K
		L 651 Ferri-Inductor	LAU101K
		L 652 Coil	CTH1228
		L 653 Coil	CTH1228
		L 655 Inductor	CTF1483
		L 691 Inductor	CTF1399
		L 692 Inductor	CTF1399
		L 693 Inductor	CTF1399
		L 951 Ferri-Inductor	LAU2R2K
		TH 601 Thermistor	CCX1037
		TH 651 Posistor	CCX1042
		X 601 Radiator 12.58291MHz	CSS1402
		BZ 601 FM/AM Tuner Unit	CWE1501
		AR 501 Buzzer	CPV1050
			DSP-201M
RESISTORS			
		R 411	RS1/10S620J
		R 412	RS1/10S101J
		R 413	RS1/10S101J
		R 414	RS1/10S222J
		R 415	RS1/10S332J
		R 416	RS1/10S682J
		R 417	RS1/10S102J
		R 418	RS1/10S102J
		R 419	RS1/10S473J
		R 420	RS1/10S103J



Unit Number : CWM6187
Unit Name : Tuner Amp Unit(DEH-P7050/ES)

MISCELLANEOUS

IC 411 IC	CA0008AM
IC 451 IC	PML004AF
IC 452 IC	PA2028A
IC 491 IC	NJM4558MD
IC 501 IC	S-81250PGPD
IC 551 IC	PAL005A
IC 601 IC	PE5005A
IC 631 IC	S-80734ANDYI
IC 651 IC	PML006A
IC 851 IC	TPD1018F
Q 411 Transistor	2SA1586
Q 412 Transistor	DTC124EK
Q 431 Transistor	HN1C03F
Q 432 Transistor	HN1C03F
Q 433 Transistor	HN1C03F
Q 434 Transistor	IMD2A
Q 451 Transistor	IMH3A
Q 452 Transistor	IMH3A
Q 453 Transistor	IMH3A
Q 501 Transistor	DTA124EK
Q 502 Transistor	2SC1740S
Q 551 Transistor	DTC144EK
Q 601 Transistor	DTA114EK
Q 641 Transistor	DTC114EK
Q 651 Transistor	2SA933S
Q 652 Transistor	2SB1236
Q 653 Transistor	DTC124EK
Q 655 FET	2SK2356Z
Q 656 Transistor	2SC3295
Q 657 Transistor	2SC2412K
Q 851 Transistor	2SA1037K
Q 852 Transistor	DTC124EK
Q 853 Transistor	2SC2412K
Q 854 Transistor	2SC2412K
Q 855 Transistor	2SC2412K
Q 951 Transistor	2SA1037K
Q 952 Transistor	2SC3673
Q 953 Transistor	IMX1
Q 954 Transistor	2SD2396
Q 955 Transistor	2SB1238
Q 956 Transistor	DTC114EK
Q 957 Chip Transistor	2SC2712
Q 958 Transistor	DTC114EK
Q 991 Transistor	2SD2396
Q 992 Transistor	IMD2A


DEH-P700R,P7000R,P7050

====Circuit Symbol and No.==Part Name	Part No.	====Circuit Symbol and No.==Part Name	Part No.
R 421	RS1/10S473J	R 523	RS1/10S473J
R 423	RS1/10S821J	R 524	RS1/10S0R0J
R 424	RS1/10S821J	R 525	RS1/10S0R0J
R 425	RS1/10S223J	R 532	RS1/10S681J
R 426	RS1/10S223J	R 533	RS1/10S473J
R 427	RS1/10S102J	R 541	RS1/10S272J
R 428	RS1/10S102J	R 542	RS1/10S272J
R 431	RS1/10S820J	R 544	RS1/10S393J
R 432	RS1/10S820J	R 545	RS1/10S162J
R 433	RS1/10S820J	R 546	RS1/10S162J
R 434	RS1/10S820J	R 547	RS1/10S0R0J
R 435	RS1/10S820J	R 551	RS1/10S103J
R 436	RS1/10S820J	R 552	RS1/10S103J
R 437	RS1/10S223J	R 553	RS1/10S331J
R 438	RS1/10S223J	R 581	RS1/16S331J
R 439	RS1/10S223J	R 582	RS1/16S331J
R 440	RS1/10S223J	R 583	RS1/16S331J
R 441	RS1/10S223J	R 584	RS1/16S331J
R 442	RS1/10S223J	R 585	RS1/16S331J
R 443	RS1/10S102J	R 586	RS1/16S331J
R 445	RS1/16S103J	R 603	RS1/10S473J
R 446	RS1/16S103J	R 604	RS1/10S102J
R 447	RS1/10S103J	R 606	RS1/10S473J
R 448	RS1/16S103J	R 607	RA3C102J
R 449	RS1/16S103J	R 610	RS1/10S222J
R 450	RS1/16S103J	R 611	RN1/10SE2202D
R 457	RS1/10S203J	R 613	RS1/10S473J
R 459	RS1/10S102J	R 614	RS1/10S222J
R 460	RS1/10S102J	R 615	RS1/10S222J
R 461	RS1/10S102J	R 616	RS1/10S473J
R 462	RS1/10S102J	R 617	RS1/10S473J
R 463	RS1/10S102J	R 618	RS1/10S473J
R 464	RS1/10S102J	R 620	RS1/10S473J
R 465	RS1/10S473J	R 621	RS1/10S473J
R 466	RS1/10S473J	R 622	RS1/10S102J
R 467	RS1/10S473J	R 623	RS1/10S202J
R 468	RS1/10S473J	R 624	RS1/10S102J
R 469	RS1/10S473J	R 625	RS1/10S102J
R 470	RS1/10S473J	R 626	RS1/10S822J
R 491	RS1/10S102J	R 633	RS1/8S473J
R 492	RS1/10S102J	R 634	RS1/10S0R0J
R 493	RS1/10S333J	R 637	RS1/16S101J
R 494	RS1/10S333J	R 651	RS1/10S222J
R 495	RS1/10S104J	R 652	RS1/10S472J
R 496	RS1/10S104J	R 653	RS1/10S222J
R 497	RS1/10S104J	R 654	RS1/8S222J
R 498	RS1/10S104J	R 655	RS1/8S222J
R 501	RS1/16S0R0J	R 656	RS1/8S222J
R 502	RS1/10S222J	R 657	RS1/10S473J
R 503	RS1/10S222J	R 658	RS1/10S472J
R 504	RS1/16S0R0J	R 659	RS1/8S472J
R 505	RS1/16S0R0J	R 660	RD1/4PU102J
R 508	RS1/10S681J	R 661	RS1/10S1R0J
R 509	RS1/10S473J	R 662	RD1/2PM390J
R 511	RS1/10S473J	R 663	RD1/2PM390J
R 512	RS1/10S681J	R 664	RS1/16S473J
R 513	RS1/10S473J	R 667	RS1/10S103J
R 514	RS1/10S681J	R 668	RS1/10S472J
R 515	RS1/10S473J	R 669	RS1/16S912J
R 516	RS1/10S681J	R 670	RS1/10S103J
R 517	RS1/10S472J	R 671	RS1/10S472J
R 518	RS1/10S103J	R 672	RS1/8S151J
R 520	RS1/10S681J	R 673	RS1/8S225J
R 521	RS1/8S151J	R 674	RS1/8S225J
R 522	RS1/10S681J	R 675	RS1/16S473J

====Circuit Symbol and No.==Part Name	Part No.	====Circuit Symbol and No.==Part Name	Part No.
R 676	RS1/8S474J	CAPACITORS	
R 677	RS1/8S474J		
R 678	RS1/8S105J	C 411	CKSQYB104K25
R 679	RD1/2PM182J	C 412	CKSQYB473K25
R 680	RD1/2PM182J	C 413	CKSYB105K16
		C 414	CKSYB105K16
R 681	RS1/10S681J	C 415	CKSYB105K16
R 682	RA3C102J		
R 685	RS1/10S152J	C 416	CKSYB105K16
R 686	RS1/16S622J	C 431	CEJA100M16
R 687	RS1/8S151J	C 432	CEJA100M16
		C 433	CEJA100M16
R 688	RS1/16S912J	C 434	CEJA100M16
R 690	RS1/8S151J		
R 691	RS1/10S102J	C 435	CEJA100M16
R 692	RS1/8S391J	C 436	CEJA100M16
R 693	RS1/8S391J	C 443	CEJA220M16
		C 445	CKLSRB222K50
R 694	RS1/16S473J	C 446	CKLSRB222K50
R 851	RS1/10S223J		
R 852	RS1/16S223J	C 447	CKLSRB222K50
R 853	RS1/10S103J	C 448	CKLSRB222K50
R 854	RS1/10S272J	C 449	CKLSRB222K50
		C 450	CKLSRB222K50
R 855	RS1/10S223J	C 451	CKSYB224K25
R 856	RS1/10S473J		
R 857	RS1/16S473J	C 452	CKSYB224K25
R 858	RS1/16S473J	C 453	CKSYB105K16
R 859	RS1/8S471J	C 454	CKSYB105K16
		C 455	CEJANP4R7M16
R 860	RS1/10S223J	C 456	CEJANP4R7M16
R 861	RS1/10S272J		
R 862	RS1/10S223J	C 457	CEJANP4R7M16
R 863	RS1/10S272J	C 458	CEJANP4R7M16
R 864	RS1/10S103J	C 459	CKSQYB473K25
		C 460	CKSQYB473K25
R 865	RS1/8S102J	C 461	CKSQYB473K25
R 866	RS1/8S102J		
R 867	RS1/16S103J	C 462	CKSQYB473K25
R 868	RD1/4PU102J	C 463	CEJA470M10
R 870	RS1/10S102J	C 464	CKSQYB104K25
		C 465	CEJA100M16
R 881	RS1/10S103J	C 466	CKSQYB153K50
R 882	RS1/10S102J		
R 951	RD1/4PU102J	C 467	CKSQYB473K25
R 952	RS1/10S153J	C 468	CKSQYB123K50
R 953	RS1/16S472J	C 469	CKSQYB333K50
		C 470	CKSQYB153K50
R 954	RS1/16S472J	C 471	CEJA100M16
R 955	RS1/10S102J		
R 956	RD1/4PU102J	C 472	CKSQYB471K50
R 957	RS1/10S101J	C 473	CEJA100M16
R 958	RS1/10S622J	C 474	CEJA100M16
		C 475	CEJA100M16
R 959	RS1/10S473J	C 476	CEAL330M25
R 960	RS1/16S473J		
R 961	RS1/10S103J	C 477	CKSYB105K16
R 962	RS1/10S473J	C 478	CKSYB105K16
R 963	RS1/10S472J	C 479	CKSYB105K16
		C 480	CKSYB105K16
R 964	RS1/10S103J	C 481	CKSYB105K16
R 965	RS1/10S473J		
R 966	RS1/10S473J	C 482	CKSYB105K16
R 967	RS1/10S102J	C 483	CEAL330M25
R 968	RS1/10S102J	C 484	CASAQ4R7M16
		C 485	CEAL4R7M35
R 969	RD1/4PU221J	C 486	CEAL4R7M35
R 970	RS1/10S1R0J		
R 971	RS1/10S473J	C 487	CEAL4R7M35
R 972	RS1/16S103J	C 488	CEAL4R7M35
R 973	RS1/16S473J	C 489	CEAL4R7M35
		C 490	CEAL4R7M35
R 974	RS1/10S103J	C 491	CKLSQB152K50
R 975	RS1/16S473J		
R 991	RD1/4PU221J	C 492	CKLSQB152K50
R 992	RD1/4PU221J	C 493	CKSQYB104K25
R 993	RS1/10S472J	C 494	CKSQYB104K25
		C 495	CKSQYB104K25
R 994	RS1/10S222J	C 496	CKSQYB104K25

====Circuit Symbol and No.==Part Name	Part No.	====Circuit Symbol and No.==Part Name	Part No.
C 497	CKSQYB104K25	B Unit Number : CWE1501	
C 498	CKSQYB104K25	Unit Name : FM/AM Tuner Unit	
C 499	CKSQYB103K25		
C 500	CKSQYB104K25	MISCELLANEOUS	
C 501	CKSQYB103K25	IC 1 IC	PML002A
C 502	CKSQYB223K50	IC 2 IC	PM4008A
C 503	CKSQYB223K50	IC 3 IC	BR9010FV
C 504	CASQA150K16	Q 1 Transistor	2SC4081
C 505	CKSQYB102K50	Q 2 Transistor	DTC124EU
C 506	CEAL101M6R3		
C 507	CKSQYB473K25	Q 3 FET	3SK263
C 521	CKSRYP102K50	Q 51 Transistor	2SC4081
C 533	CKSQYB183K50	Q 201 FET	2SK932
C 534	CKSQYB183K50	Q 202 Transistor	DTC124EU
C 535	CKSQYB472K50	Q 204 Transistor	2SC4081
C 536	CCSQCH101J50	D 1 Diode	KV1410(23)
C 551	CKSYB224K25	D 2 Diode	1SV248
C 552	CKSYB224K25	D 6 Diode	KV1410(23)
C 553	CKSYB224K25	D 201 Diode	MA143
C 554	CKSYB224K25	D 202 Diode	MA147
C 555	CEJA330M10	D 903 Diode	KV1410(23)
C 557	CKSYB105K16	D 904 Diode	SVC253
C 558 10μF/16V	CCH1219	L 1 Coil	CTC1155
C 559	CKSYB104K50	L 3 Inductor	LCTB1R5K2125
C 560 3300μF/16V	CCH1330	L 4 Coil	CTC1155
C 561	CKSQYB473K25	L 201 Inductor	LCTB330K1608
C 601	CCSQCH200J50	L 202 Inductor	CTF1287
C 602	CCSQCH200J50	L 203 Inductor	LCTA121J3225
C 603	CKSYB105K16	L 901 Coil	CTC1154
C 604	CEAL4R7M35	L 902 Inductor	LCTA3R3J3225
C 605	CCSQCH101J50	L 904 Inductor	LCTBR47K1608
C 607	CCSQCH101J50	L 905 Inductor	LCTBR47K1608
C 608	CCSQCH101J50	T 51 Coil	CTE1132
C 609	CCSQCH101J50	CF 51 Ceramic Filter	CTF1442
C 610	CCSQCH101J50	CF 52 Ceramic Filter	CTF1442
C 611	CCSQCH101J50	CF 53 Ceramic Filter	CTF1442
C 612	CEAL2R2M50	CF 202 Ceramic Filter	CTF1476
C 651	CCSQCH101J50	X 901 Crystal Resonator 10.250MHz	CSS1432
C 652	CEAL4R7M35		
C 653	CKSRYP222K50	RESISTORS	
C 655 2.2μF/25V	CCH1327	R 1	RS1/16S183J
C 656 2.2μF/25V	CCH1327	R 2	RS1/16S103J
C 657 0.1μF	CCG1096	R 5	RS1/16S0R0J
C 658 4.7μF	CCG1089	R 7	RS1/16S273J
C 659	CEJA470M16	R 8	RS1/16S473J
C 660	CKSQYB102K50	R 9	RS1/16S223J
C 662 150pF	CCG1095	R 10	RS1/16S473J
C 670	CKSQYB473K25	R 11	RS1/16S221J
C 851	CKSQYB473K25	R 12	RS1/16S103J
C 881	CKSQYB473K25	R 13	RS1/16S104J
C 951 470μF/16V	CCH1325	R 16	RS1/16S223J
C 952	CKSQYB473K25	R 17	RS1/16S221J
C 953	CEJA101M10	R 18	RS1/16S221J
C 954	CKSQYB473K25	R 19	RS1/16S473J
C 955	CEJA101M16	R 20	RS1/16S470J
C 956	CKSQYB103K25	R 31	RS1/16S0R0J
C 957 330μF/16V	CCH1326	R 51	RS1/16S470J
C 958	CKSQYB102K50	R 52	RS1/16S103J
C 959	CKSQYB105K16	R 53	RS1/16S103J
C 989 470μF/16V	CCH1183	R 54	RS1/16S331J
C 991	CKSQYB473K25	R 55	RS1/16S331J
C 992	CKSQYB102K50	R 56	RS1/16S560J
C 993	CEJA101M10	R 57	RS1/16S560J
		R 58	RS1/16S102J
		R 59	RS1/16S225J
		R 60	RS1/16S133J
		R 61	RS1/16S433J
		R 101	RS1/16S333J
		R 102	RS1/16S103J
		R 103	RS1/16S333J

====Circuit Symbol and No.===Part Name		Part No.	====Circuit Symbol and No.===Part Name		Part No.	
R	104	RS1/16S562J	C	116	CEAL2R2M50	
R	106	RS1/16S0R0J	C	117	CKSRYB102K50	
R	108	RS1/16S0R0J	C	120	CKSRYB183K25	
R	110	RS1/16S154J	C	121	CKSRYB332K50	
R	111	RS1/16S273J	C	122	CKSRYB562K25	
R	113	RS1/16S222J	C	123	CKSRYB681K50	
R	114	RS1/16S333J	C	125	CKSRYB103K50	
R	115	RS1/16S334J	C	126	CKSRYB103K50	
R	116	RS1/16S473J	C	127	CEAL2R2M50	
R	202	RS1/16S472J	C	128	CKSRYB103K50	
R	203	RS1/16S225J	C	201	CCSRCH471J50	
R	204	RS1/16S102J	C	202	CCSRCH100D50	
R	205	RS1/16S220J	C	203	CKSRYB104K16	
R	206	RS1/16S471J	C	204	CKSRYB332K50	
R	208	RS1/16S104J	C	205	CKSRYB103K50	
R	209	RS1/16S104J	C	206	CKSRYB104K16	
R	210	RS1/16S563J	C	207	CKSRYB473K16	
R	213	RS1/16S223J	C	208	CCSRCH560J50	
R	902	RS1/16S103J	C	209	CEAL470M6R3	
R	904	RS1/16S473J	C	210	CKSRYB103K50	
R	907	RS1/16S103J	C	211	CKSRYB103K50	
R	908	RS1/16S681J	C	212	CCSRCH101J50	
R	909	RS1/16S473J	C	215	CKSRYB223K25	
R	914	RS1/16S562J	C	216	CKSQYB334K16	
CAPACITORS			C	217	CKSRYB103K50	
C	1	CCSQCH4R0C50	C	219	CKSQYB105K10	
C	6	CKSQYB105K10	C	220	CKSRYB104K16	
C	8	CKSRYB222K50	C	221	CKSRYB473K16	
C	10	CCSRCH220J50	C	222	CKSQYB334K16	
C	11	CCSRCH150J50	C	223	CKSQYB474K16	
			C	224	CKSRYB104K16	
C	12	CCSRCH8R0D50	C	225	CKSRYB272K50	
C	14	CCSRCJ3R0C50	C	226	CKSRYB682K25	
C	15	CKSRYB103K50	C	902	CCSRCH270J50	
C	16	CKSRYB222K50	C	904	CKSRYB223K25	
C	17	CKSRYB222K50				
			C	905	CKSRYB103K50	
C	18	CCSRCJ3R0C50	C	906	CCSRTH100D50	
C	19	CKSRYB103K50	C	907	CCSRTH150J50	
C	20	CKSRYB103K50	C	909	CCSRTH100D50	
C	21	CKSRYB103K50	C	910	CKSRYB332K50	
C	24	CKSQYB334K16				
			C	912	CKSQYB474K16	
C	26	CKSRYB472K50	C	913	CKSRYB223K25	
C	30	CCSRCH220J50	C	914	CKSRYB682K25	
C	32	CCSRCH470J50	C	915	CKSQYB223K25	
C	35	CKSRYB103K50	C	916	CKSQYB474K16	
C	51	CKSRYB103K50				
			C	917	CKSYB475K10	
C	52	CKSRYB473K16	C	918	CKSRYB223K25	
C	53	CCSRCK2R0C50	C	919	CKSQYB225K10	
C	54	CKSRYB103K50	C	920	CCSRCH270J50	
C	55	CKSRYB104K16	C	921	CCSRCH270J50	
C	56	CKSRYB104K16				
			C	922	CKSYB105K16	
C	58	CKSQYB224K16	C	923	CKSRYB103K50	
C	101	CEALNP100M10				
C	102	CCSRCH151J50				
C	103	CKSRYB473K16				
C	105	CKSRYB682K25				
C	106	CEALR68M50	MISCELLANEOUS			
C	107	CKSRYB103K50	IC	901	IC	PD6279A
C	108	CKSQYB474K16	IC	902		RS-140
C	109	CKSQYB474K16	D	901	Diode	DAN202K
C	110	CKSRYB104K16	D	902	Diode	DAP202K
			D	903	LED	CL170SBX
C	111	CKSRYB104K16	D	904	LED	CL170PGCD(AB)
C	112	CKSRYB104K16	L	901	Inductor	LCTA101J3225
C	113	CKSRYB123K25	X	901	Radiator 5.00MHz	CSS1423
C	114	CEAL220M6R3	S	901	Switch	CSG1107
C	115	CKSRYB473K16	S	902	Switch	CSG1112

====Circuit Symbol and No.==Part Name	Part No.	====Circuit Symbol and No.==Part Name	Part No.
S 903 Switch	CSG1111	 Unit Number : CWM6197	
S 904 Switch	CSG1112	Unit Name : Keyboard Unit(DEH-P7050/ES)	
S 905 Switch	CSG1112		
S 907 Switch	CSG1112		
S 908 Switch	CSG1112		
		MISCELLANEOUS	
S 909 Switch	CSG1112	IC 901 IC	PD6279A
S 910 Switch	CSG1112	IC 902	RS-140
S 911 Switch	CSG1112	D 901 Diode	DAN202K
S 913 Switch	CSG1107	D 902 Diode	DAP202K
S 914 Switch	CSG1111	D 903 LED	CL170SBX
S 915 Switch	CSG1112	L 904 LED	CL170PGCD(AB)
S 916 Switch	CSG1112	X 901 Inductor	LCTA101J3225
S 917 Switch	CSG1112	X 901 Radiator 5.00MHz	CSS1423
S 919 Switch	CSG1107	S 901 Switch	CSG1107
S 920 Switch	CSG1112	S 902 Switch	CSG1112
S 921 Switch	CSG1112	S 903 Switch	CSG1111
S 922 Switch	CSG1107	S 904 Switch	CSG1112
S 995 Switch	CSG1112	S 905 Switch	CSG1112
S 996 Switch	CSG1112	S 907 Switch	CSG1112
S 997 Switch	CSG1112	S 908 Switch	CSG1112
S 998 Switch LCD EL	CSG1112 CAW1519 CEL1592	S 909 Switch	CSG1112
		S 910 Switch	CSG1112
		S 911 Switch	CSG1112
		S 913 Switch	CSG1107
		S 914 Switch	CSG1111
		S 915 Switch	CSG1112
		S 916 Switch	CSG1112
		S 917 Switch	CSG1112
		S 919 Switch	CSG1107
		S 920 Switch	CSG1112
		S 921 Switch	CSG1112
		S 922 Switch	CSG1107
		S 995 Switch	CSG1112
		S 996 Switch	CSG1112
		S 997 Switch	CSG1112
		S 998 Switch LCD EL	CSG1112 CAW1518 CEL1592
RESISTORS		RESISTORS	
R 901	RS1/10S222J	R 901	RS1/10S222J
R 902	RS1/10S222J	R 902	RS1/10S222J
R 903	RS1/10S472J	R 903	RS1/10S472J
R 904	RS1/10S121J	R 904	RS1/10S121J
R 905	RS1/10S2R2J	R 905	RS1/10S2R2J
R 906	RS1/10S470J	R 906	RS1/10S470J
R 907	RS1/10S470J	R 907	RS1/10S470J
R 909	RS1/8S561J	R 909	RS1/8S561J
R 910	RS1/8S561J	R 910	RS1/8S561J
R 911	RS1/8S561J	R 911	RS1/8S561J
R 912	RS1/8S561J	R 912	RS1/8S561J
R 913	RS1/8S561J	R 913	RS1/8S561J
R 914	RS1/8S561J	R 914	RS1/8S561J
R 915	RS1/8S751J	R 915	RS1/8S751J
R 916	RS1/8S751J	R 916	RS1/8S751J
R 917	RS1/8S561J	R 917	RS1/8S561J
R 918	RS1/8S561J	R 918	RS1/8S561J
R 919	RS1/8S561J	R 919	RS1/8S561J
R 920	RS1/8S561J	R 920	RS1/8S561J
R 921	RS1/8S561J	R 921	RS1/8S561J
R 922	RS1/8S561J	R 922	RS1/8S561J
R 923	RS1/8S621J	R 923	RS1/8S621J
R 929	RS1/8S0R0J	R 929	RS1/8S0R0J
R 930	RS1/8S152J	R 930	RS1/8S152J
R 931	RS1/8S152J	R 931	RS1/8S152J
R 932	RS1/8S102J	R 932	RS1/8S102J
R 933	RS1/8S102J	R 933	RS1/8S102J
CAPACITORS			
C 901	CSZSR100M16		
C 902	CKSQYB104K50		
C 903	CSZSR100M16		
C 904	CKSQYB103K50		
C 905	CKSQYB103K50		
C 906	CKSQYB103K50		
C 907	CKSQYB104K50		

====Circuit Symbol and No.====Part Name	Part No.	====Circuit Symbol and No.====Part Name	Part No.
CAPACITORS			
C 901	CSZSR100M16	C 209	CCSRCJ3R0C50
C 902	CKSQYB104K50	C 210	CCSRCH221J50
C 903	CSZSR100M16	C 211	CCSRCH101J50
C 904	CKSQYB103K50	C 212	CKSQYB682K50
C 905	CKSQYB103K50	C 213	CKSQYB104K16
C 906	CKSQYB103K50	C 214	CKSQYB104K16
C 907	CKSQYB104K50	C 215	CKSQYB104K16
		C 216	CKSQYB104K16
		C 217	CKSQYB104K16
		C 218	CKSQYB104K16
D Unit Number : CWX2235		C 219	CKSQYB104K16
Unit Name : Compound Unit		C 220	CKSQYB104K16
MISCELLANEOUS		C 301	CEV470M16
IC 201 IC	UPD63710GC	C 502	CKSRYB471K50
IC 301 IC	BA5985FM	C 601	CEV4R7M35
IC 601 IC	TA2063F	C 602	CEV4R7M35
IC 701 IC	BA05SFP	C 603	CCSOSL152J50
Q 101 Transistor	2SB1132	C 604	CCSOSL152J50
D 801 LED	CL200IRX	C 605	CEV220M6R3
D 802 LED	CL200IRX	C 701	CEV101M6R3
X 201 Ceramic Oscillator 16.934MHz	CSS1456	C 702 10μF/6.3V	CCH1338
S 801 Spring Switch(HOME)	CSN1051	C 703	CKSQYB334K16
S 802 Spring Switch(CLAMP)	CSN1052		
		E Unit Number :	
RESISTORS		Unit Name : Photo Unit	
R 101	RS1/8S120J	Q 1 Photo-transistor	CPT230SX-TU
R 102	RS1/8S100J	Q 2 Photo-transistor	CPT230SX-TU
R 103	RS1/16S222J		
R 201	RS1/16S104J	Miscellaneous Parts List	
R 205	RS1/16S103J		
R 206	RS1/16S393J	M 1 Pickup Unit(Service)(P8)	CXX1285
R 207	RS1/16S182J	M 2 Motor Unit(CARRIAGE)	CXB2190
R 208	RS1/16S304J	M 2 Motor Unit(LOADING)	CXB2195
R 210	RS1/16S0R0J	M 3 Motor Unit(SPINDLE)	CXB2562
R 212	RS1/16S103J	S 651 Switch(CLOSE)	CSN1027
R 213	RS1/16S103J		
R 214	RS1/16S123J		
R 215	RS1/16S273J		
R 216	RS1/16S273J		
R 309	RS1/16S473J		
R 310	RS1/16S473J		
R 503	RA4C681J		
R 504	RS1/16S102J		
R 601	RS1/16S102J		
R 602	RS1/16S102J		
R 603	RS1/16S223J		
R 604	RS1/16S223J		
R 801	RS1/8S751J		
R 802	RS1/8S751J		
CAPACITORS			
C 101	CCSRCH102J25		
C 102	CKSQYB104K16		
C 103	CEV101M6R3		
C 104	CEV470M6R3		
C 105	CKSQYB334K16		
C 106	CKSQYB334K16		
C 107	CKSQYB334K16		
C 201	CKSQYB104K16		
C 202	CEV101M6R3		
C 203	CKSQYB104K16		
C 204	CKSRYB332K50		
C 205	CKSQYB104K16		
C 206	CKSRYB392K50		
C 207	CKSQYB224K16		
C 208	CCSRCH270J50		

6. ADJUSTMENT

6.1 CD ADJUSTMENT

1) Precautions

- This unit uses a single power supply (+5V) for the regulator. The signal reference potential, therefore, is connected to REFO(approx. 2.5V) instead of GND.

If REFO and GND are connected to each other by mistake during adjustments, not only will it be impossible to measure the potential correctly, but the servo will malfunction and a severe shock will be applied to the pick-up. To avoid this, take special note of the following.

Do not connect the negative probe of the measuring equipment to REFO and GND together. It is especially important not to connect the channel 1 negative probe of the oscilloscope to REFO with the channel 2 negative probe connected to GND.

Since the frame of the measuring instrument is usually at the same potential as the negative probe, change the frame of the measuring instrument to floating status.

If by accident REFO comes in contact with GND, immediately switch the regulator or power OFF.

- Always make sure the regulator is OFF when connecting and disconnecting the various filters and wiring required for measurements.
- Before proceeding to further adjustments and measurements after switching regulator ON, let the player run for about one minute to allow the circuits to stabilize.
- Since the protective systems in the unit's software are rendered inoperative in test mode, be very careful to avoid mechanical and /or electrical shocks to the system when making adjustment.
- Disc detection during loading and eject operations is performed by means of a photo transistor in this unit. Consequently, if the inside of the unit is exposed to a strong light source when the outer casing is removed for repairs or adjustment, the following malfunctions may occur.

*During PLAY, even if the eject button is pressed, the disc will not be ejected and the unit will remain in the PLAY mode.

*The unit will not load a disc.

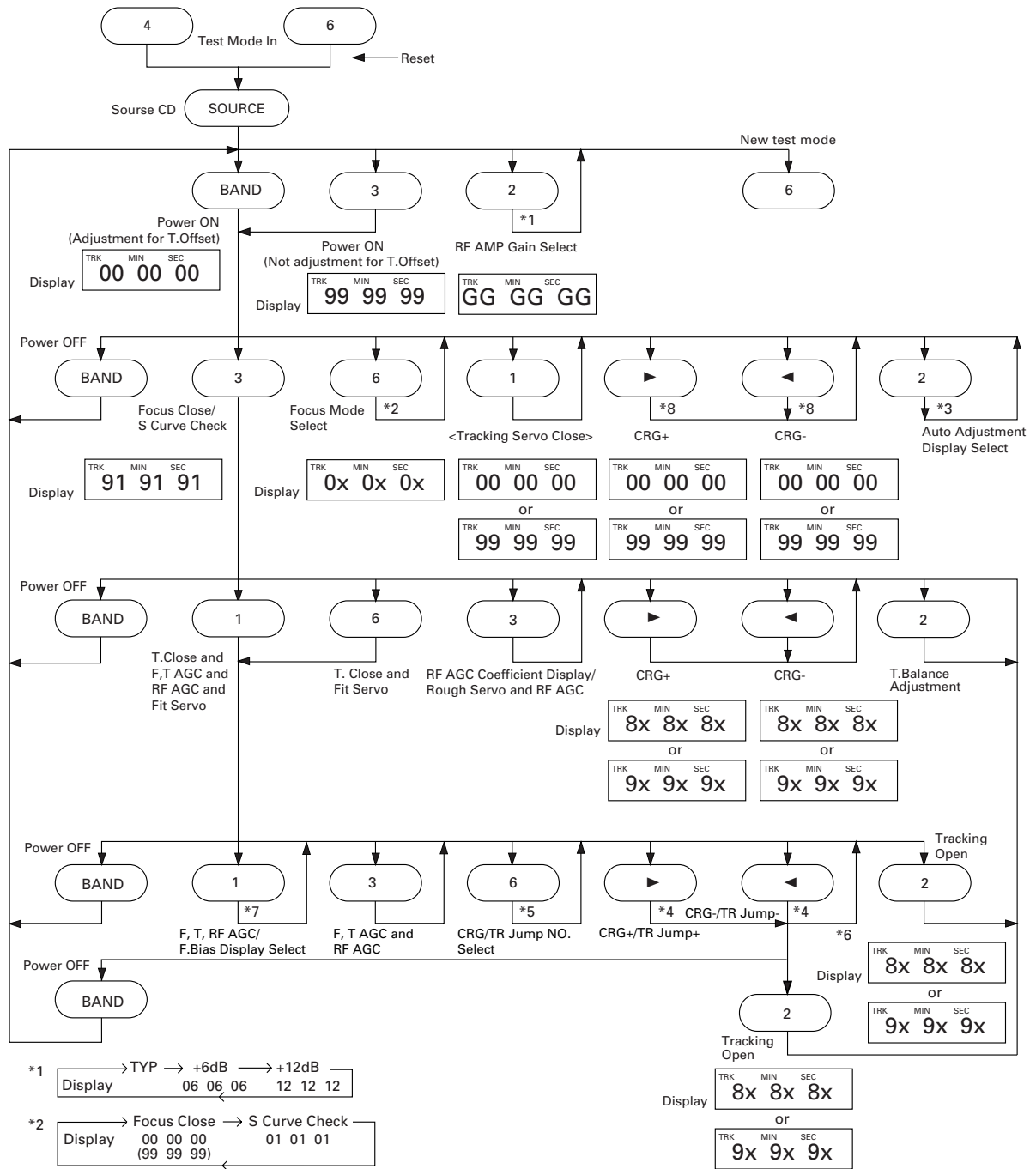
When the unit malfunctions this way, either re-position the light source, move the unit or cover the photo transistor.

2) Test Mode

This mode is used for adjusting the CD mechanism module of the device.

- Test mode starting procedure
Reset while pressing the **4** and **6** keys together.
- Test mode cancellation
Switch ACC, back-up OFF.
- After pressing the EJECT key, do not press any other key until the disk is completely ejected.
- If the ► or ◀ key is pressed while focus search is in progress, immediately turn the power off (otherwise the actuator may be damaged due to adhesion of the lenses).
- Jump operation of TRs other than 100TR continues after releasing the key. CRG move and 100TR jump operations are brought into the "Tracking close" status when the key is released.
- Powering Off/On resets the jump mode to "Single TR (91)", the RF AMP gain setting to 0 dB, and the automatic adjustment value to the initial value.

● Flow Chart



*1 → TYP → +6dB → +12dB
Display 06 06 06 12 12 12

*2 → Focus Close → S Curve Check
Display 00 00 00 01 01 01
(99 99 99)

*3 → F.Offset Display → RF.Offset Display → F.Cancel Display
[F.Cancel Value = (Top Rank 8bit of Set Value (7F [H] to 80 [H]) + 128) / 4
= 63 [D] to (32 [D]) to 00 [D]

*4 Single TR/32TR/100TR

*5 → Single TR → 32TRK → 100TRK → CRG Move
Display 9x(8x):91(81) 92(82) 93(83) 94(84)

*6 CRG Move, 100TR Jump Only

*7 → TRK, MIN, SEC → F.AGC Gain → T.AGC Gain → RF AGC Gain
(F,T.AGC Gain = (Present Value/Initial Value) × 20)

*8 Voltage of CRG Motor = 2 [V]

6.2 CHECKING THE GRATING AFTER CHANGING THE PICKUP UNIT

• Note :

The grating angle of the PU unit cannot be adjusted after the PU unit is changed. The PU unit in the CD mechanism module is adjusted on the production line to match the CD mechanism module and is thus the best adjusted PU unit for the CD mechanism module. Changing the PU unit is thus best considered as a last resort. However, if the PU unit must be changed, the grating should be checked using the procedure below.

• Purpose :

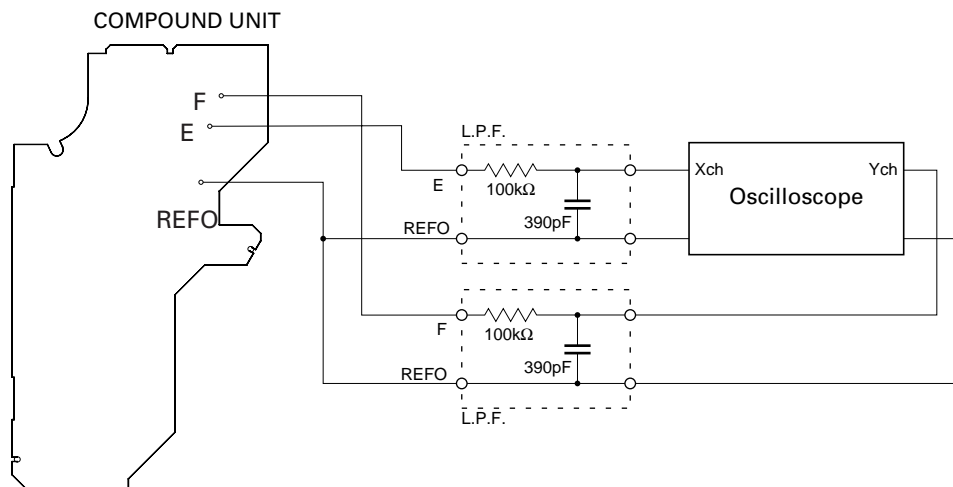
To check that the grating is within an acceptable range when the PU unit is changed.

• Symptoms of Mal-adjustment :

If the grating is off by a large amount symptoms such as being unable to close tracking, being unable to perform track search operations, or taking a long time for track searching.

• Method :

- | | |
|-----------------------|----------------------------|
| • Measuring Equipment | • Oscilloscope, Two L.P.F. |
| • Measuring Points | • E, F, REFO |
| • Disc | • ABEX TCD-784 |
| • Mode | • TEST MODE |



• Checking Procedure

1. In test mode, load the disc and switch the 5V regulator on.
2. Using the ► and ◄ buttons, move the PU unit to the innermost track.
3. Press key 3 to close focus, the display should read "91". Press key 2 to implement the tracking balance adjustment the display should now read "81". Press key 3 2 times. The display will change, returning to "81" on the fourth press.
4. As shown in the diagram above, monitor the LPF outputs using the oscilloscope and check that the phase difference is within 75°. Refer to the photographs supplied to determine the phase angle.
5. If the phase difference is determined to be greater than 75° try changing the PU unit to see if there is any improvement. If, after trying this a number of times, the grating angle does not become less than 75° then the mechanism should be judged to be at fault.

• Note

Because of eccentricity in the disc and a slight misalignment of the clamping center the grating waveform may be seen to "wobble" (the phase difference changes as the disc rotates). The angle specified above indicates the average angle.

• Hint

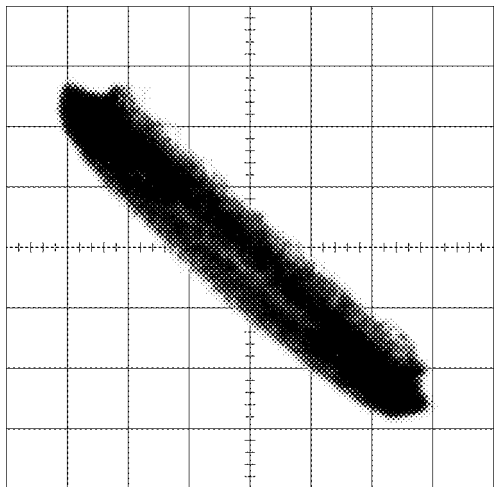
Reloading the disc changes the clamp position and may decrease the "wobble".

Grating waveform

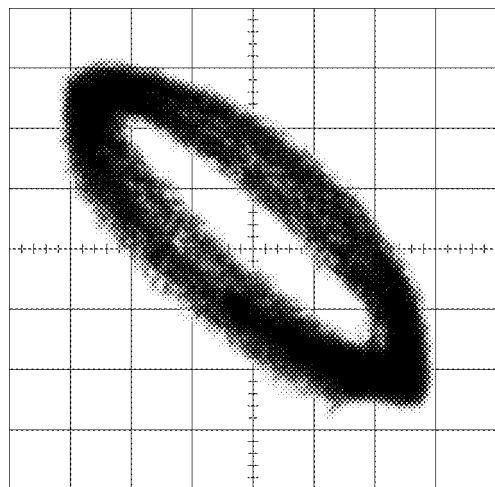
Ech → Xch 20mV/div, AC

Fch → Ych 20mV/div, AC

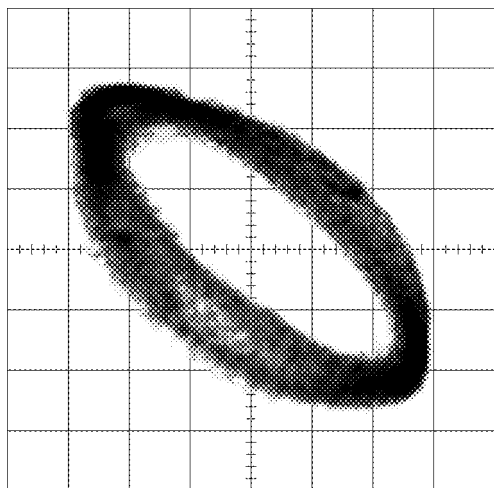
0°



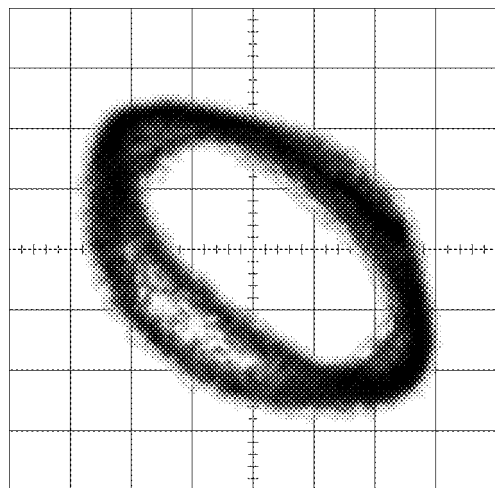
30°



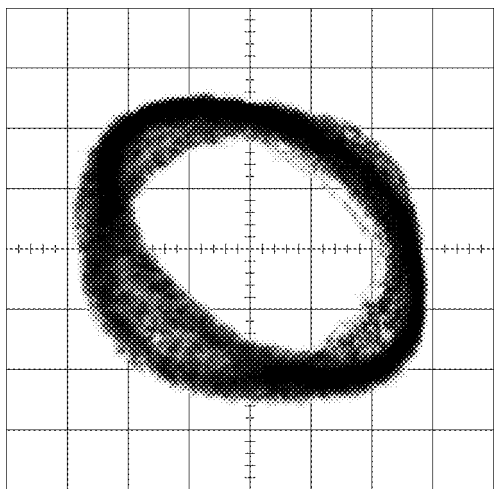
45°



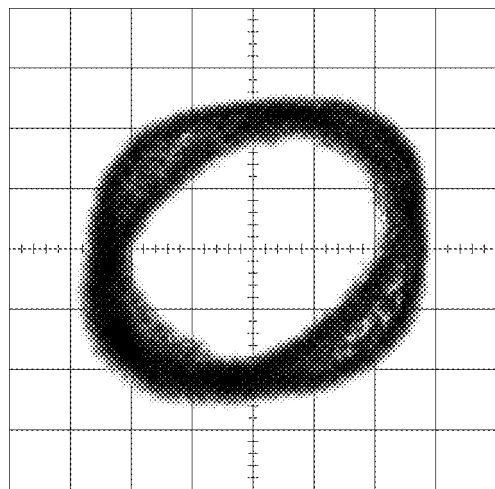
60°



75°



90°



7. GENERAL INFORMATION

7.1 PARTS

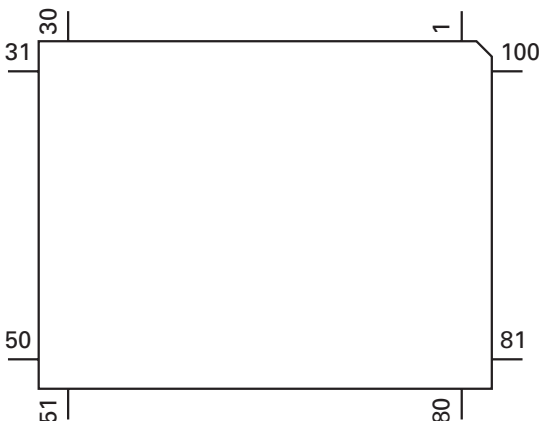
7.1.1 IC

● Pin Functions (PE5004B)

Pin No.	Pin Name	I/O	Function and Operation
1	SWVDD	O	Key board unit power supply control output
2	DSENS	I	Grille detach sense input
3,4	NC		Not used
5	TESTIN	I	Test program mode input
6	DRST	O	RDS decoder reset output
7	TELIN	I	Telephone mute input
8	NC		Not used
9	RECIVE	O	During RDS data reception output
10	NC		Not used
11	RESET	I	Reset input
12	XT2		Not used (open)
13	XT1		Connect to GND
14	VSS		GND
15	X2		Crystal oscillator connection pin
16	X1		Crystal oscillator connection pin
17	REGOFF		Connect to VSS
18	REGC		Capacitor for regulator connect pin
19	VDD		Power supply
20	ILMPW	O	Illumination power supply control output
21	SYSPW	O	System power control output
22	ADPW	O	A/D converter power
23	LCDPW	O	LCD back light power supply control output
24	IPPW	O	Power supply control output for IP BUS interface IC
25	ASENBO	O	Slave power supply control output
26	ROMDATA	O	ROM correction data output
27	ROMCLK	O	ROM correction clock output
28	MUTE	O	System mute output
29	FM/AM	O	RDS decoder power supply control output
30	LOCL	O	Local L output
31	LOCH	O	Local H output
32	PCE2	O	EEPROM chip enable output
33	VCK	O	Clock output for electronic volume
34	VST	O	Strobe pulse output for electronic volume
35	VDT	O	Data output for electronic volume
36	NC		Not used
37	ROMCS	O	ROM correction chip select output
38	SD	I	Station detector input
39	ST	I	FM stereo input
40	VSS		GND
41	VDD		Power supply
42	DIM	O	DIMMER select output
43	CSENS	I	Flap close sense input
44	RDSLK	I	RDS LK signal input
45	CURRQ	O	Tuner voltage FIX output
46	RDT	I	RDS demodulation data input
47	DRELAY	O	External relay control output
48	DRSENS	I	Door open/close sense input
49	DRSYS	O	Door system select output
50	DLED	O	Alarm LED output
51	DLSENS	I	Door lock sense input
52	STCUT	O	Starter cut output
53	MOSENS	I	Motion/window damage sensor input
54	CD5VON	O	CD +5V power supply control output

Pin No.	Pin Name	I/O	Function and Operation
55	CONT	O	CD servo driver power supply control
56	VDCONT	O	CD VD power control output
57	CDMUTE	O	CD mute control output
58	CDEJET	O	CD load motor eject control output
59	CDLOAD	O	CD LOAD motor loading control output
60	LOCK	I	CD spindle lock detector input
61	FOK	I	CD focus OK signal input
62	PCL	O	Clock adjustment output
63	MIRR	I	CD mirror detection input
64	CLAMP	I	CD disc clamp input
65	XCLK	O	CD clock output
66	XSI	I	CD LSI data input
67	XSO	O	CD LSI data output
68	XA0	O	CD LSI command / data control output
69	XRST	O	CD LSI reset output
70	XSTB	O	CD LSI strobe output
71,72	NC		Not used
73	TEST	I	Test input terminal
74	SL	I	Signal level input from tuner
75	LLEVEL	I	Level indicator L channel input
76	MODEL1	I	Model select input
77	RLEVEL	I	Level indicator R channel input
78	EJTSNS	I	CD disc EJECT position detect
79	DSCSNS	I	CD disc insert sense input
80	VDSNS	I	VD voltage sense input
81	TEMP	I	Temperature sense input (CD)
82	VDD		A/D converter power supply terminal
83	VDD		A/D converter reference voltage terminal
84	GND		GND
85	RX	I	IP BUS data input
86	TX	O	IP BUS data output
87	GND		GND
88	LDET	I	PLL lock sense input
89	RCK	I	RDS demodulation clock input
90	RDS57K	I	RDS 57kHzBP-OUT sense input
91	ISENS	I	Illumination sense input
92	ASENS	I	ACC power sense input
93	BSENS	I	Back up power sense input
94	TUNPDI	I	PLL IC data input
95	KYDT	I	Key data input
96	DPDT	O	Display data output
97	TUNPCK	O	PLL IC clock output
98	TUNPDO	O	PLL IC data output
99	TUNPCE	O	PLL IC chip enable output
100	PEE	O	Beep tone output

*PE5004B



IC's marked by* are MOS type.

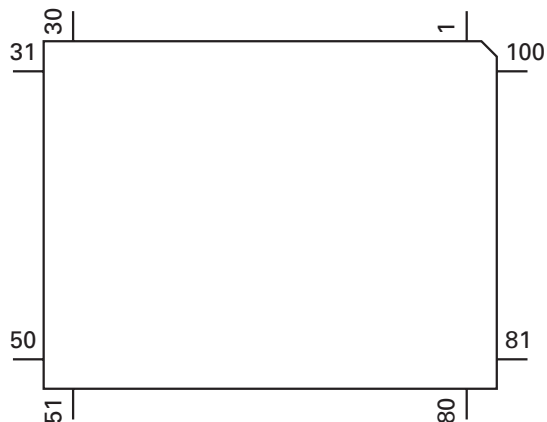
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

● Pin Functions (PE5005A)

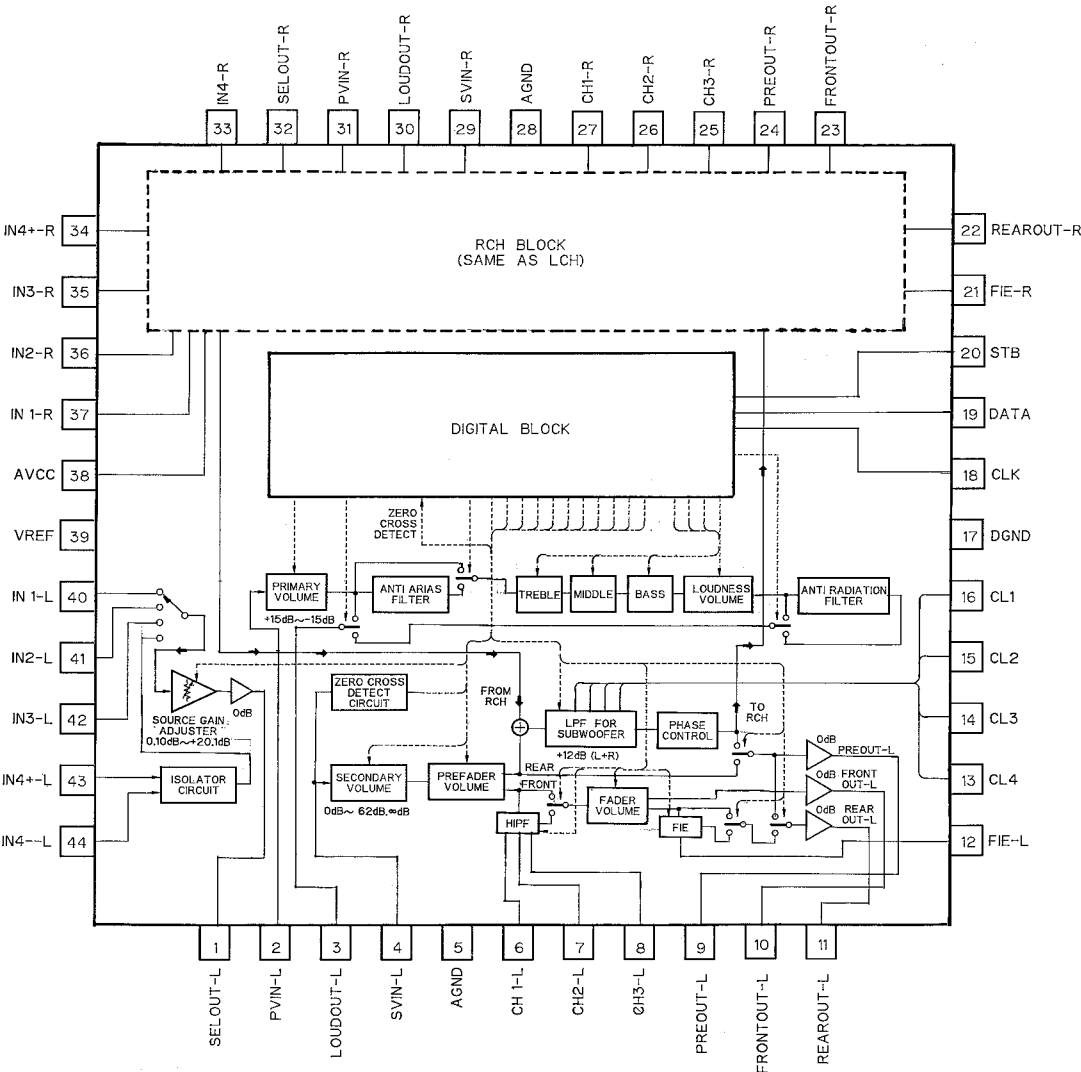
Pin No.	Pin Name	I/O	Function and Operation
1	SWVDD	O	Key board unit power supply control output
2	$\overline{\text{DSENS}}$	I	Grille detach sense input
3,4	NC		Not used
5	TESTIN	I	Test program mode input
6	NC		Not used
7	TELIN	I	Telephone mute input
8-10	NC		Not used
11	$\overline{\text{RESET}}$	I	Reset input
12	XT2		Not used (open)
13	XT1		Connect to GND
14	VSS		GND
15	X2		Crystal oscillator connection pin
16	X1		Crystal oscillator connection pin
17	REGOFF		Connect to VSS
18	REGC		Capacitor for regulator connect pin
19	VDD		Power supply
20	ILMPW	O	Illumination power supply control output
21	SYSPW	O	System power control output
22	ADPW	O	A/D converter power
23	LCDPW	O	LCD back light power supply control output
24	IPPW	O	Power supply control output for IP BUS interface IC
25	ASENBO	O	Slave power supply control output
26	ROMDATA	O	ROM correction data output
27	ROMCLK	O	ROM correction clock output
28	MUTE	O	System mute output
29	$\overline{\text{FM/AM}}$	O	RDS decoder power supply control output
30	LOCL	O	Local L output
31	LOCH	O	Local H output
32	PCE2	O	EEPROM chip enable output
33	VCK	O	Clock output for electronic volume
34	VST	O	Strobe pulse output for electronic volume
35	VDT	O	Data output for electronic volume
36	NC		Not used
37	ROMCS	O	ROM correction chip select output
38	SD	I	Station detector input
39	$\overline{\text{ST}}$	I	FM stereo input
40	VSS		GND
41	VDD		Power supply
42	DIM	O	DIMMER select output
43	$\overline{\text{CSENS}}$	I	Flap close sense input
44	NC		Not used
45	$\overline{\text{CURRQ}}$	O	Tuner voltage FIX output
46	NC		Not used
47	DRELAY	O	External relay control output
48	DRSENS	I	Door open/close sense input
49	DRSYS	O	Door system select output
50	$\overline{\text{DLED}}$	O	Alarm LED output
51	DLSENS	I	Door lock sense input
52	NC		Not used
53	$\overline{\text{MOSENS}}$	I	Motion/window damage sensor input
54	CD5VON	O	CD +5V power supply control output
55	CONT	O	CD servo driver power supply control
56	VDCONT	O	CD VD power control output
57	CDMUTE	O	CD mute control output
58	CDEJET	O	CD load motor eject control output
59	CDLOAD	O	CD LOAD motor loading control output
60	LOCK	I	CD spindle lock detector input
61	FOK	I	CD focus OK signal input

Pin No.	Pin Name	I/O	Function and Operation
62	PCL	O	Clock adjustment output
63	MIRR	I	CD mirror detection input
64	CLAMP	I	CD disc clamp input
65	XSCK	O	CD clock output
66	XSI	I	CD LSI data input
67	XSO	O	CD LSI data output
68	XA0	O	CD LSI command / data control output
69	XRST	O	CD LSI reset output
70	XSTB	O	CD LSI strobe output
71,72	NC		Not used
73	TEST	I	Test input terminal
74	SL	I	Signal level input from tuner
75	LLEVEL	I	Level indicator L channel input
76	MODEL1	I	Model select input
77	RLEVEL	I	Level indicator R channel input
78	EJTSNS	I	CD disc EJECT position detect
79	DSCSNS	I	CD disc insert sense input
80	VDSNS	I	VD voltage sense input
81	TEMP	I	Temperature sense input (CD)
82	VDD		A/D converter power supply terminal
83	VDD		A/D converter reference voltage terminal
84	GND		GND
85	RX	I	IP BUS data input
86	TX	O	IP BUS data output
87	GND		GND
88	LDET	I	PLL lock sense input
89,90	NC		Not used
91	ISENS	I	Illumination sense input
92	ASENS	I	ACC power sense input
93	BSENS	I	Back up power sense input
94	TUNPDI	I	PLL IC data input
95	KYDT	I	Key data input
96	DPDT	O	Display data output
97	TUNPCK	O	PLL IC clock output
98	TUNPDO	O	PLL IC data output
99	TUNPCE	O	PLL IC chip enable output
100	PEE	O	Beep tone output

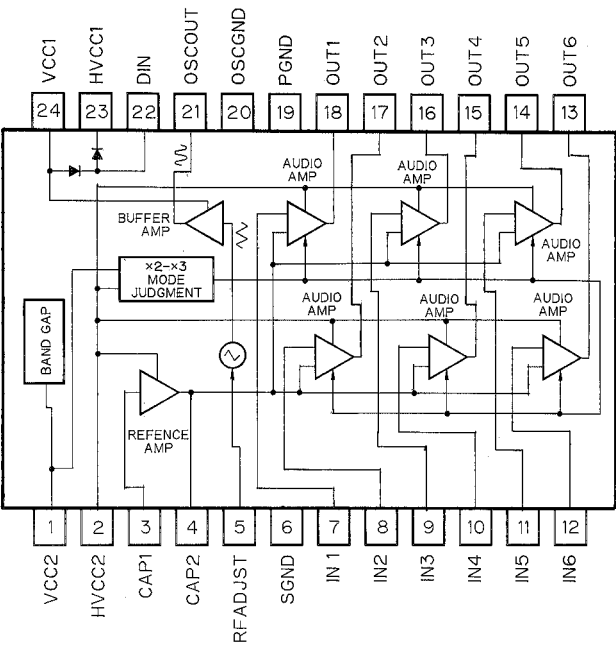
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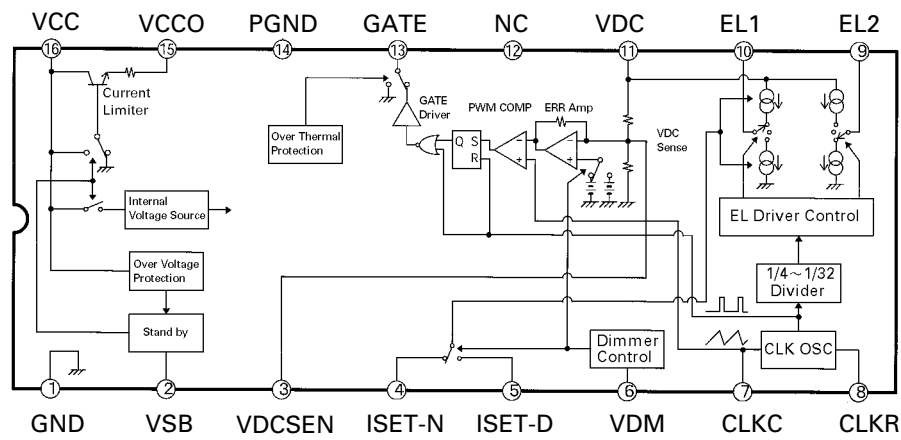
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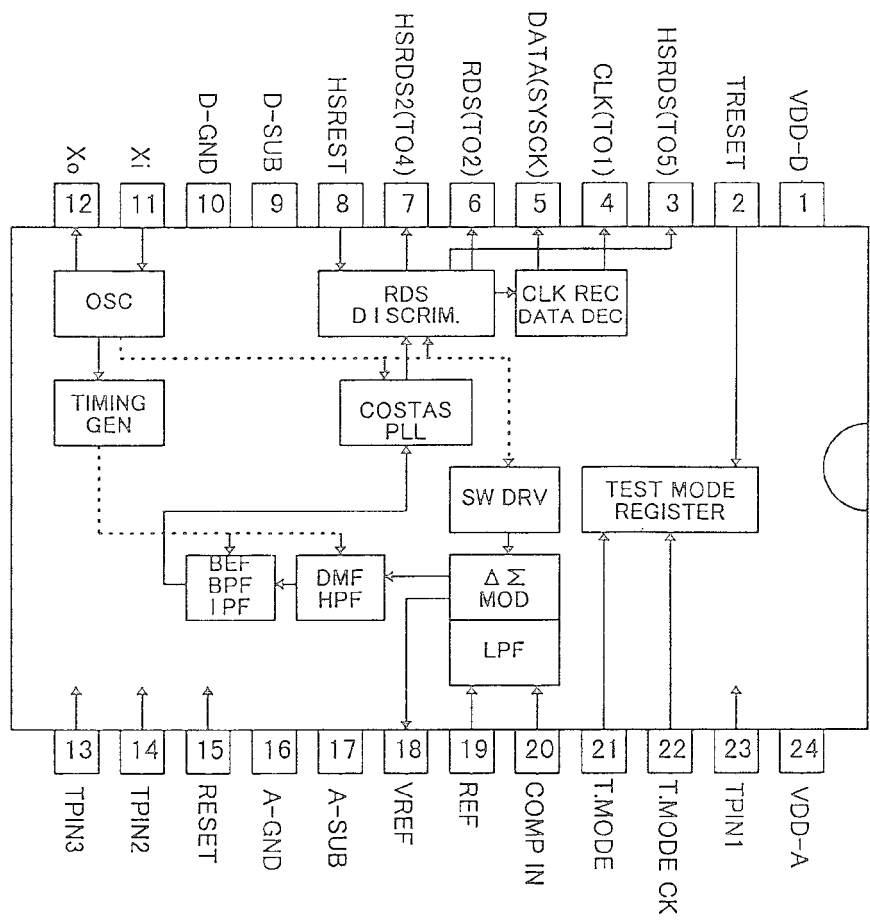
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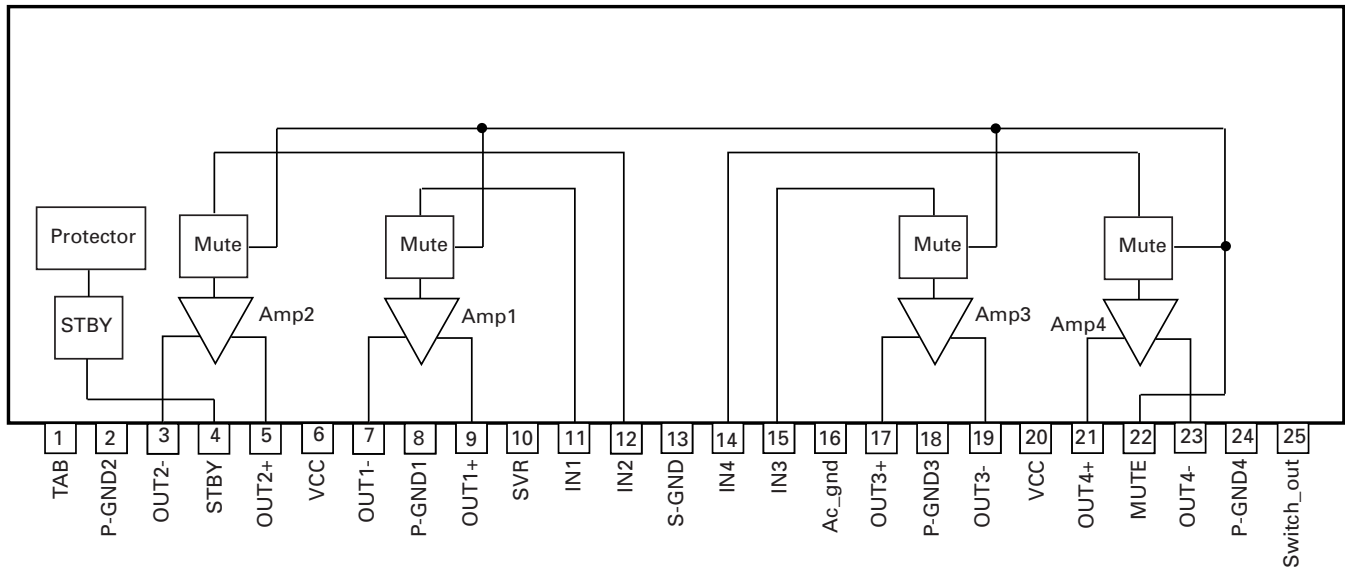
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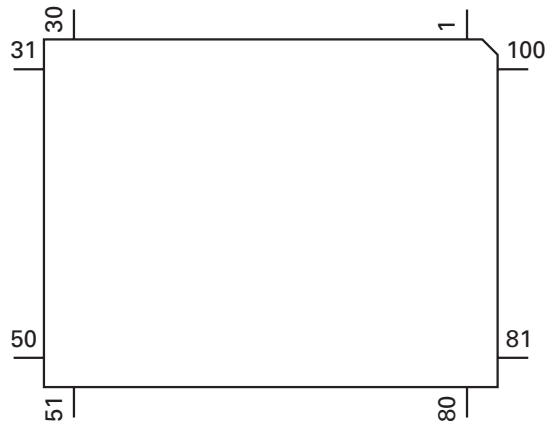
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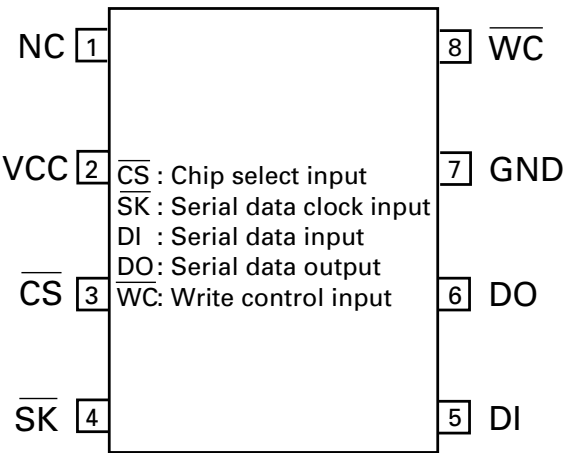
● Pin Functions (PD6279A)

Pin No.	Pin Name	I/O	Function and Operation
1-42	SEG41-0	O	LCD segment output
43-46	COM3-0	O	LCD common output
47-49	V1-V3		LCD bias power supply
50	VCC		Power supply terminal
51	LED	O	LED control output
52	SO	O	System micro computer UART communication data output
53	SI	I	System micro computer UART communication data input
54,55	MOD0,1		GND
56	RST	I	Reset signal input terminal
57	X0		Crystal oscillator connection pin
58	X1		Crystal oscillator connection pin
59	VSS		GND
60	REMIN	I	Remote control reception input
61	DIM	O	Dimmer select output
62	GRN/AMB	O	Illumination color select output
63-66	KDT4-1	I	Key data input
67-72	KST6-1	O	Key strobe output
73-100	SEG69-42	O	LCD segment output

*PD6279A



BR9010FV

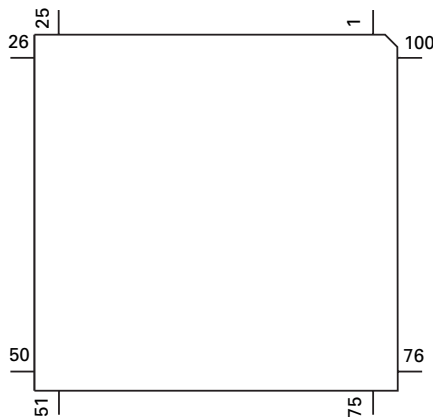


● Pin Functions (UPD63710GC)

Pin No.	Pin Name	I/O	Function and Operation
1	GND		Logic circuit GND
2	HOLD	I/O	Defect detection output
3	MIRR	I/O	MIRR output
4	FOK	O	RFOK signal output
5	RST	I	Reset signal input
6	A0	I	Command/parameter identification signal input
7	STB	I	Data strobe signal input
8	SCK	I	Clock signal input for serial data input/output
9	SO	O	Serial data and status signal output
10	SI	I	Serial data input
11	VDD		Positive power supply terminal to logic circuit
12	DA.VDD		Positive power supply terminal to D/A converter
13	NC		Not used
14, 15	DA.GND		D/A converter GND
16	NC		Not used
17	DA.VDD		Positive power supply terminal to D/A converter
18	R+	O	Right channel audio data output
19	R-	O	Right channel audio data output
20	L-	O	Left channel audio data output
21	L+	O	Left channel audio data output
22	X.VDD		Positive power supply terminal to crystal oscillation circuit
23	XTAL	O	Crystal oscillator connect pin
24	XTAL	I	Crystal oscillator connect pin
25	X.GND		Crystal oscillation circuit GND
26	VDD		Positive power supply terminal to logic circuit
27	EMPH	O	Output pin for the pre-emphasis data in the sub-Q code
28	FLAG	O	Flag output pin to indicate that audio data currently being output consists of noncorrectable data
29	DIN	I	Serial data input to internal DAC
30	DOUT	O	Serial audio data output
31	SCKIN	I	Serial clock input to internal DAC
32	SCKO	O	Audio data that is output from DOUT changes at rising edge of this clock
33	LRCKIN	I	LRCK signal input to internal DAC
34	LRCK	O	Signals to distinguish the right and left channels of the audio data output from DOUT
35	WDCK	O	Output double the frequency of LRCK
36	TX	O	Digital audio interface data output
37	GND		Logic circuit GND
38	C16M	O	Oscillator clock buffering output
39	LIMIT	I	Status of the pin is output at Bit 5 of the status output
40	VDD		Positive power supply terminal to logic circuit
41	LOCK	O	EFM synchronous detection signal
42	RFCK	O	Frame synchronous signal of XTAL-system
43	WFCK	O	Frame synchronous signal of PLL-system
44	PLCK	O	Monitor pin of bit clock
45	GND		Logic circuit GND
46	C1D1	O	Output pin for indicating the C1 error correction results
47	C1D2	O	Output pin for indicating the C1 error correction results
48	C2D1	O	Output pin for indicating the C2 error correction results
49	C2D2	O	Output pin for indicating the C2 error correction results
50	C2D3	O	Output pin for indicating the C2 error correction results
51	VDD		Positive power supply terminal to logic circuit
52	PACK	O	CD-TEXT PACK synchronous signal
53	TSO	O	CD-TEXT data serial output
54	TSI	I	CD-TEXT control parameter serial input
55	TSCK	I	CD-TEXT serial clock input
56	TSTB	I	CD-TEXT parameter strobe signal input
57	GND		Logic circuit GND
58	TEST	I	Test pin

Pin No.	Pin Name	I/O	Function and Operation
59	ATEST	I/O	Test pin
60	RFMODE	I	Use/not use select for internal RF amplifier
61	A.GND		Analog circuit GND
62	FD	O	Focus drive output
63	TD	O	Tracking drive output
64	SD	O	Sled drive output
65	MD	O	Spindle drive output
66	DACO	O	DAC output for adjustment
67	FBAL	O	DAC output for adjustment
68	TBAL	O	DAC output for adjustment
69	TEVCA	O	DAC output for adjustment
70	A.VDD		Power supply terminal to analog circuit
71	EFM	O	EFM signal output
72	ASY	I	EFM comparator reference voltage input
73	C3T		3T detection capacitor additional pin
74	RFI	I	RF signal input for EFM data regulation
75	AGCO	O	RF signal output of after gain adjustment
76	AGCI	I	RF-AGC amplifier input
77	RFO	O	RF summing amplifier output
78	EQ2		RF amplifier equalizer parts additional pin
79	EQ1		RF amplifier equalizer parts additional pin
80	RF-	I	RF summing amplifier inverted input
81	A.GND		Analog circuit GND
82	A	I	Photo detector A input
83	C	I	Photo detector C input
84	B	I	Photo detector B input
85	D	I	Photo detector D input
86	F	I	Photo detector F input
87	E	I	Photo detector E input
88	A.VDD		Positive power supply terminal to analog circuit
89	REFOUT	O	Reference electric potential output
90	FE-	I	Focus error amplifier inverted input
91	FEO	I/O	Focus error amplifier output
92	TE-	I	Tracking error amplifier inverted input
93	TEO	I/O	Tracking error amplifier output
94	TE2	I/O	Tracking error output of after amplification
95	TEC	I	Tracking comparator input
96	A.GND		Analog circuit GND
97	PD	I	PD detection signal input for LD output monitor
98	LD	O	LD control current output
99	PN	I	APC circuit control polarity set pin
100	A.VDD		Positive power supply terminal to analog circuit

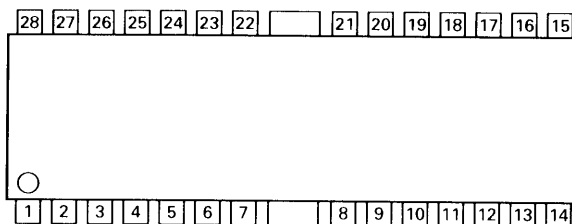
*UPD63710GC



● Pin Functions (BA5985FM)

Pin No.	Pin Name	I/O	Function and Operation
1	FWD	I	Loading driver FWD input
2	OPIN1(+)	I	CH1 pre-amplifier input
3	OPIN1(-)	I	CH1 pre-amplifier inverted input
4	OPOUT1	O	CH1 pre-amplifier output
5	OPIN2(+)	I	CH2 pre-amplifier input
6	OPIN2(-)	I	CH2 pre-amplifier inverted input
7	OPOUT2	O	CH2 pre-amplifier output
8	VCC		Power supply
9	VOL(-)	O	Loading driver negative output
10	VOL(+)	O	Loading driver positive output
11	VO2(-)	O	Driver CH2 negative output
12	VO2(+)	O	Driver CH2 positive output
13	VO1(-)	O	Driver CH1 negative output
14	VO1(+)	O	Driver CH1 positive output
15	VO4(+)	O	Driver CH4 positive output
16	VO4(-)	O	Driver CH4 negative output
17	VO3(+)	O	Driver CH3 positive output
18	VO3(-)	O	Driver CH3 negative output
19	GND		GND
20	BIAS	I	Bias input
21	MUTE		Mute control
22	OPOUT3	O	CH3 pre-amplifier output
23	OPIN3(-)	I	CH3 pre-amplifier inverted input
24	OPIN3(+)	I	CH3 pre-amplifier input
25	OPOUT4	O	CH4 pre-amplifier output
26	OPIN4(-)	I	CH4 pre-amplifier inverted input
27	OPIN4(+)	I	CH4 pre-amplifier input
28	REV	I	Loading driver REV input

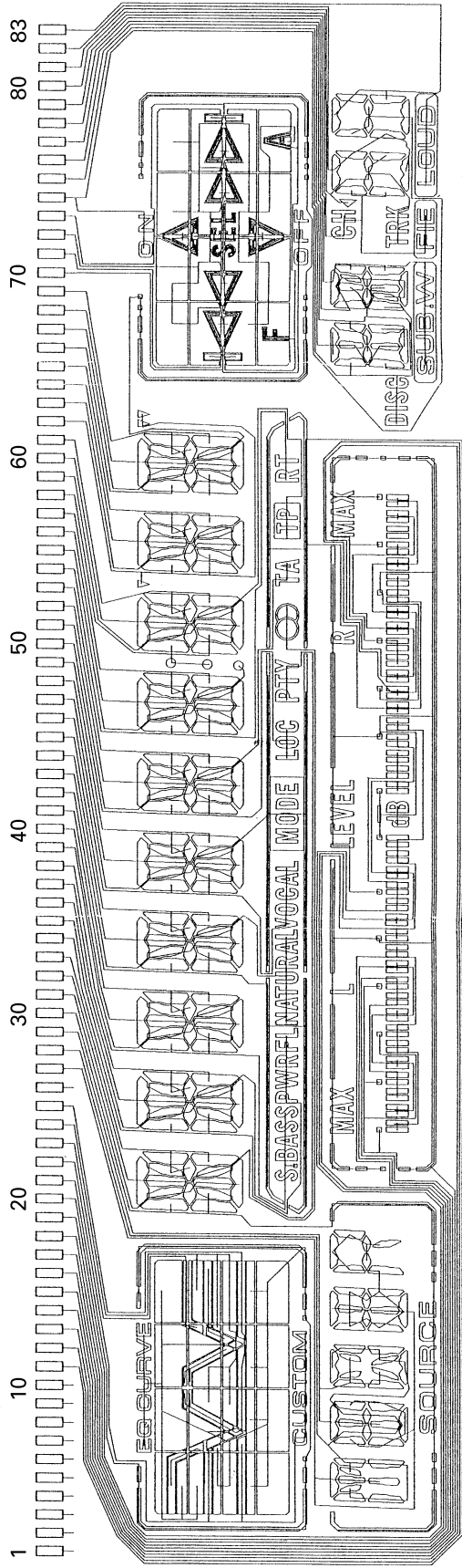
BA5985FM



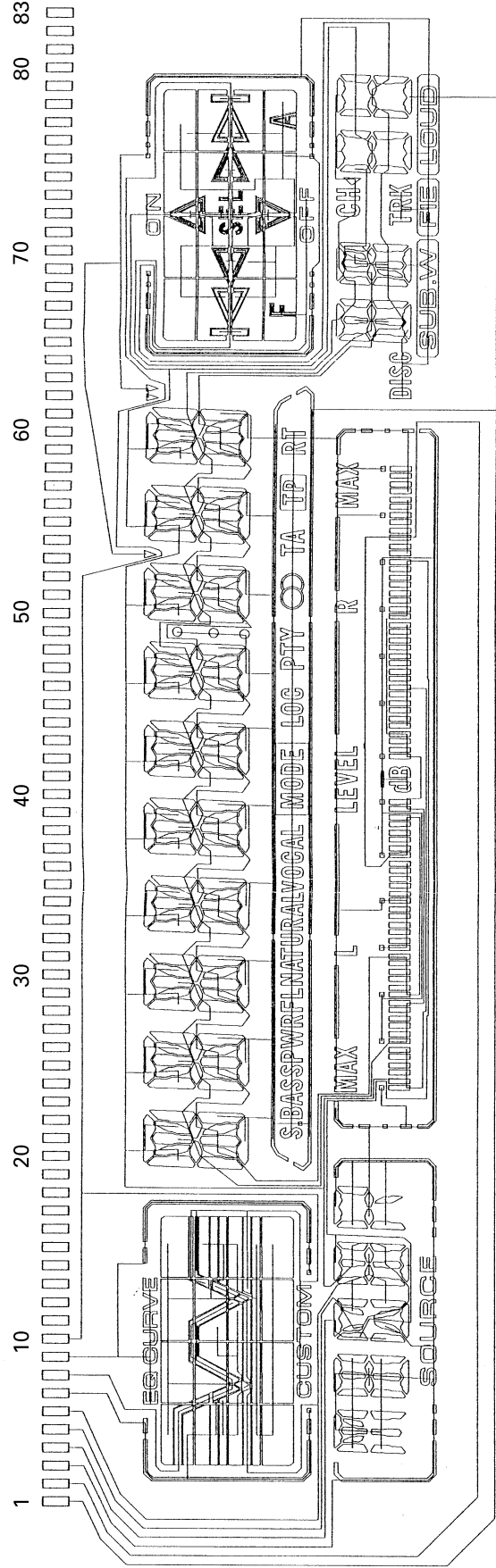
7.1.2 DISPLAY

● CAW1519(DEH-P700R/UC, DEH-P7000R/UC)

SEGMENT

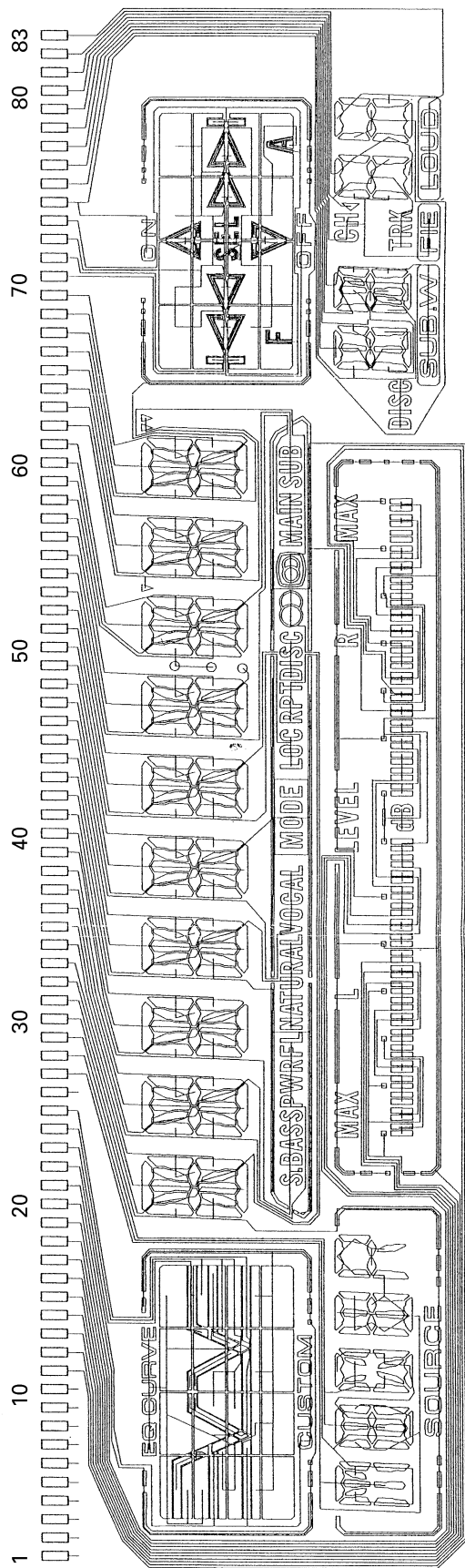


COMMON

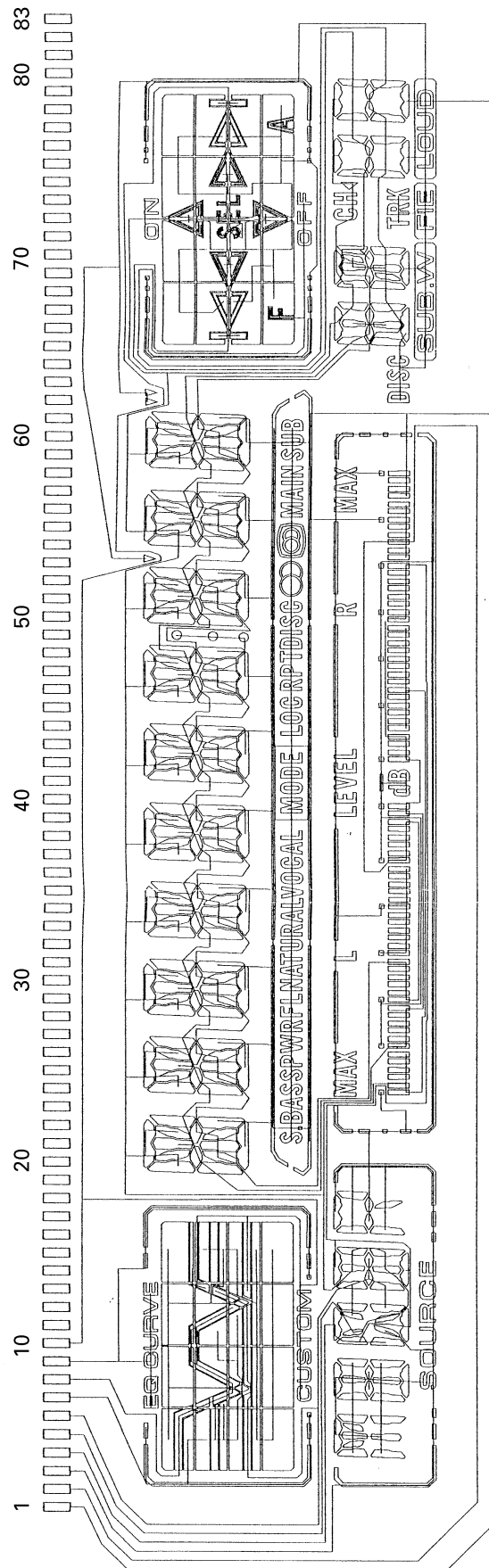


● CAW1518(DEH-P7050/ES)

SEGMENT



COMMON



7.2 DIAGNOSIS

7.2.1 DISASSEMBLY

● Removing the Case Unit(not shown)

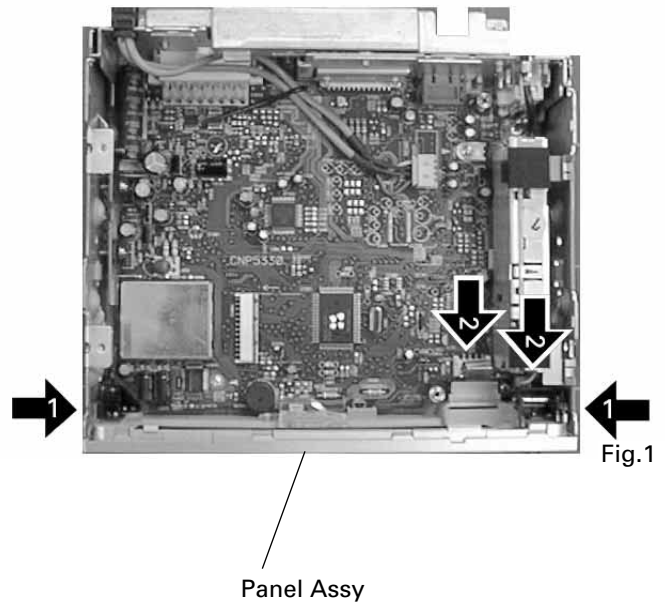
1.Remove the Case Unit.

● Removing the Panel Assy(Fig.1)

- ➡ 1 Remove the two screws.
- ➡ 2 Disconnect the connectors and then remove the Panel Assy.

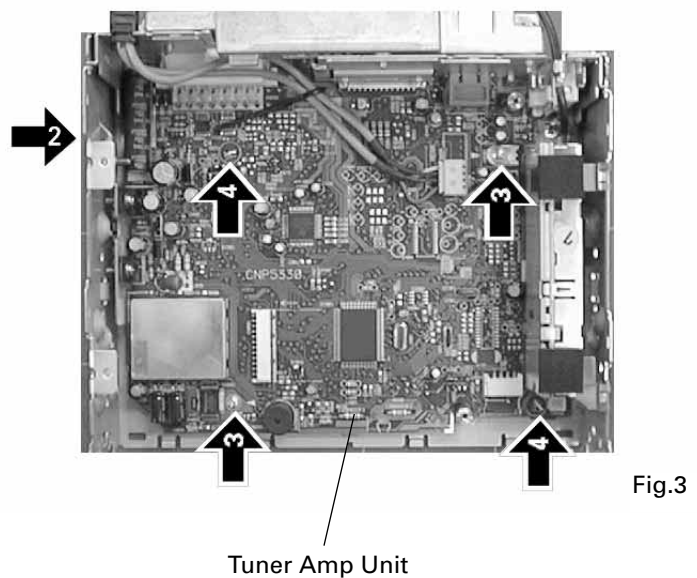
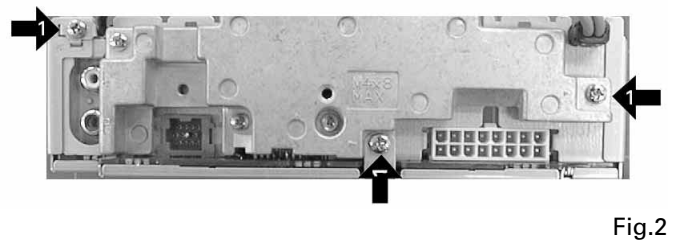
● Removing the CD Mechanism Module (not shown)

- 1.Remove the four screws.
- 2.Disconnect the connector, and then remove the CD Mechanism Module.



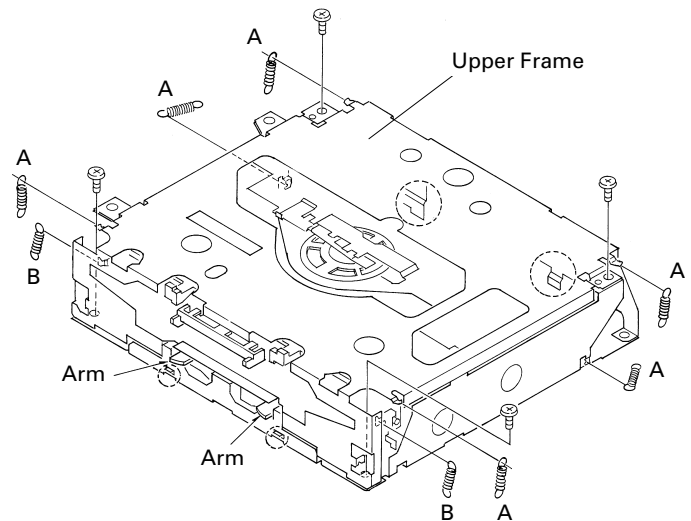
● Removing the Tuner Amp Unit(Fig.2,3)

- ➡ 1 Remove the three screws.
- ➡ 2 Remove the screw.
- ➡ 3 Remove the two screws.
- ➡ 4 Straighten the tabs at two locations indicated. Remove the Tuner Amp Unit.



● Removing the Upper Frame

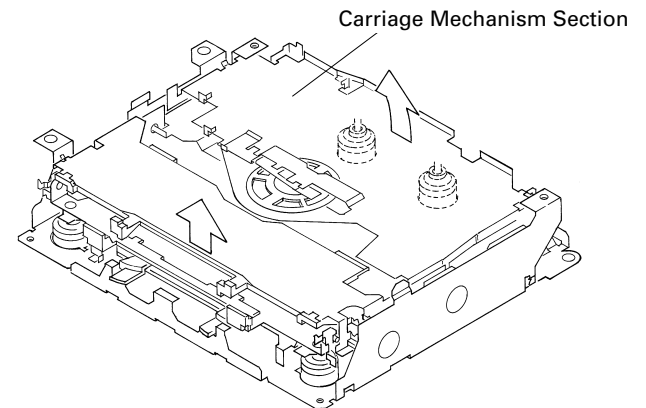
1. Remove six Springs A, two Springs B and four Screws.
2. Remove two Tabs situated on rear side of the Upper Frame, remove two Arms on the front side, then remove two Tabs on the front side.



● Removing the Carriage Mechanism

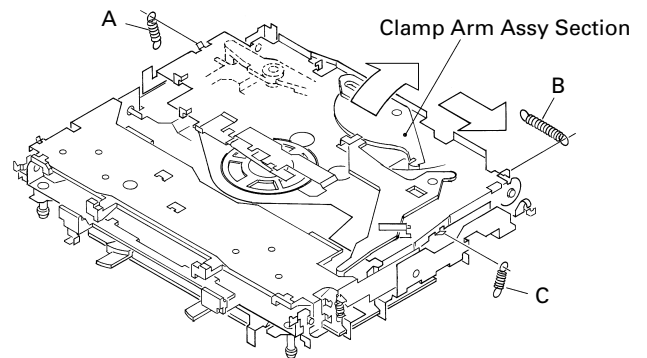
1. Disengage the Carriage Mechanism from the two dampers situated in the front side by driving it up, then disengage and remove the mechanism from the two dampers by driving it up aslant into front side direction.

Note : When assembling the Carriage Mechanism, coat the dampers with alcohol prior to the assembly.



● Removing the Clamp Arm Assy

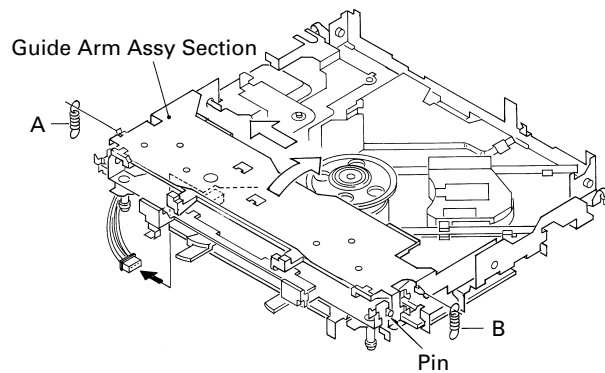
1. Remove a Spring A, a B and a Spring C.
2. Drive the Clamp Arm Assy up into rear side direction, then disengage the arm from its current position. Finally, drive the assembly approximately 45 degrees upward, then slide the assembly toward right side to remove it.



● Removing the Guide Arm Assy

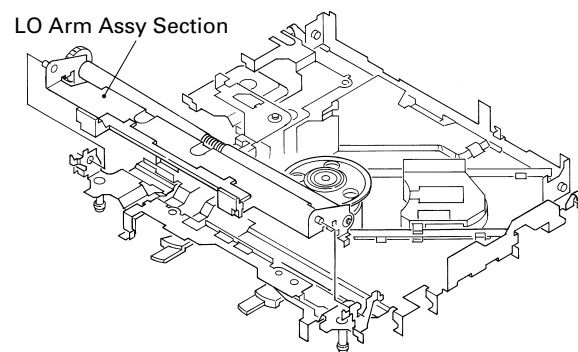
1. Remove a connector, a spring A and B
2. Drive the Guide Arm Assy up aslant into rear side direction, then remove it from a Pin. Finally, drive the assembly approximately 45 degrees upward, then slide the assembly toward left side to remove it.

Note : When assembling the guide arm assembly, route the cord inside the assembly. In this operation, care must be exercised so that cord may be caught by the gear.



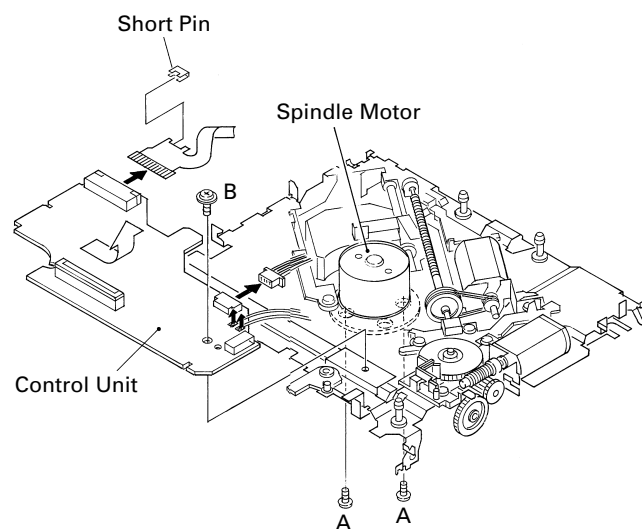
● Removing the LO Arm Assy

1. Remove two Pins to dismount the LO Arm Assy.



● Removing the Control Unit and the Spindle Motor

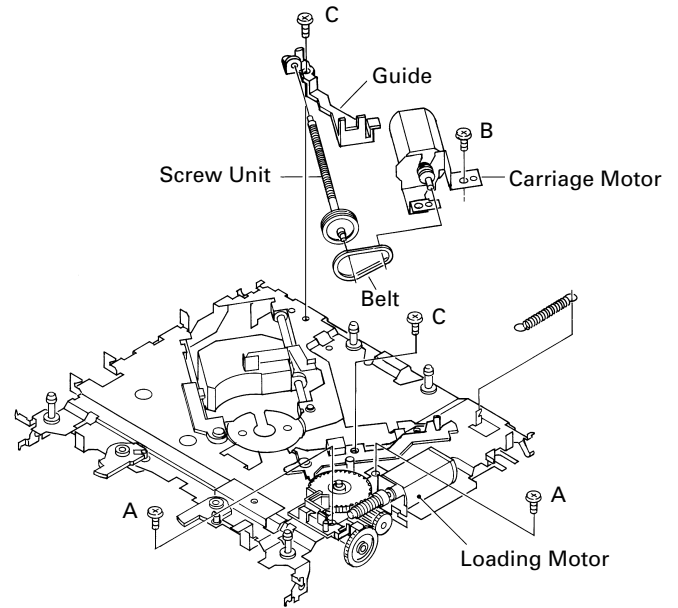
1. Remove from the connector after mounting the short pin on the flexible PCB of the pickup unit.
2. Remove two Soldered joints, then remove two Screws A.
3. Remove two connectors and a Screw B.
4. Disengage the Control Unit from two Tabs, then dismount the unit by sliding it toward left.
5. Dismount the Spindle Motor.



● Removing the Loading Motor and Carriage Motor

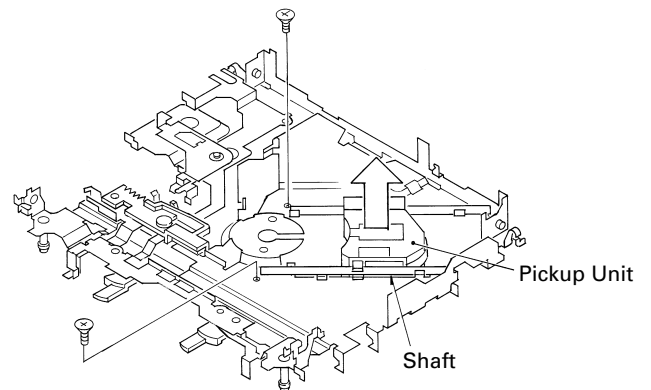
1. Remove the Spring and two Screws A.
2. Dismount the Loading Motor.
3. Remove the Belt, a Screw B, two Screws C, a Guide and a Screw Unit.
4. Dismount the Carriage Motor.

Note : When assembling the Belt, use care so that it may not be contaminated by grease.



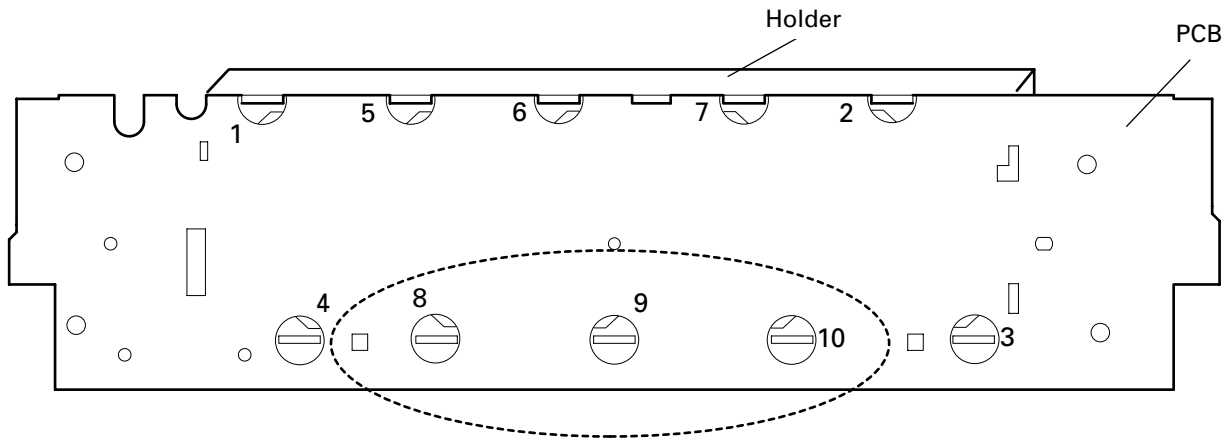
● Removing the Pickup Unit

1. Remove two Screws and a Shaft.
2. Dismount the Pickup Unit.



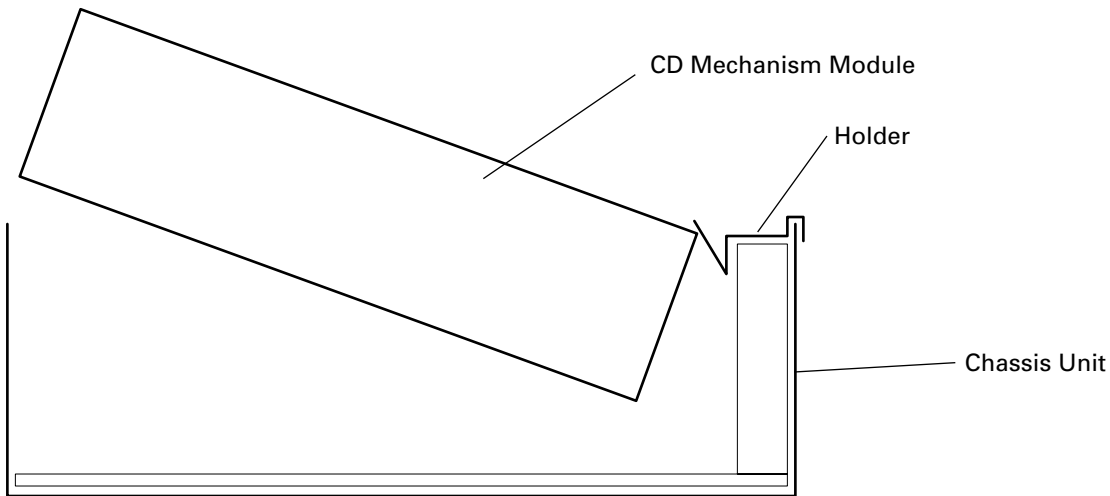
● Precautions on Holder mounting

When mounting a holder on the keyboard unit PCB, do not bend the claws 8 to 10. Otherwise, an unstable LCD indication may result when pressing a button.



● Precautions on CD Mechanism Module mounting

When mounting a CD mechanism module on the chassis unit, mount it with an angle, as shown in the figure, in order to prevent the holder from being bent. When mounting is completed, make sure that the holder is contacting the CD mechanism module.



7.2.2 TEST MODE

● Error Messages

If a CD is not operative or stopped during operation due to an error, the error mode is turned on and cause(s) of the error is indicated with a corresponding number. This arrangement is intended at reducing nonsense calls from the users and also for facilitating trouble analysis and repair work in servicing.

(1) Basic Indication Method

1) When SERRORM is selected for the CSMOD (CD mode area for the system), error codes are written to DMIN (minutes display area) and DSEC (seconds display area). The same data is written to DMIN and DSEC. DTNO remains in blank as before.

2) Head unit display examples

Depending on display capability of LCD used, display will vary as shown below. xx contains the error number.

8-digit display	6-digit display	4-digit display
ERROR-xx	ERR-xx	E-xx
	OR	
	Err-xx	

(2) Error Code List

Code	Class	Displayed error code	Description of the code and potential cause(s)
10	Electricity	Carriage Home NG	CRG can't be moved to inner diameter. CRG can't be moved from inner diameter. → Failure on home switch or CRG move mechanism.
11	Electricity	Focus Servo NG	Focusing not available. → Stains on rear side of disc or excessive vibrations on REWRITABLE.
12	Electricity	Spindle Lock NG	Spindle not locked. Sub-code is strange (not readable). → Failure on spindle, stains or damages on disc, or excessive vibrations.
		Subcode NG	A disc not containing CD-R data is found. Turned over disc are found, though rarely. → Failure on home switch or CRG move mechanism.
		RF AMP NG	An appropriate RF AMP gain can't be determined. → CD signal error.
17	Electricity	Setup NG	APC protection doesn't work. Focus can be easily lost. → Damages or stains on disc, or excessive vibrations.
30	Electricity	Search Time Out	Failed to reach target address. → CRG tracking error or damages on disc.
A0	System	Power Supply NG	Power (VD) is ground faulted. → Failure on SW transistor or power supply (failure on connector).

Remarks: Mechanical errors are not displayed (because a CD is turned off in these errors).

Unreadable TOC does not constitute an error. An intended operation continues in this case.

A newly designed head unit must conform to the example given above.

Upper digits of an error code are subdivided as shown below:

1x: Setup relevant errors, 3x: Search relevant errors, 3x: Search relevant errors, Ax: Other errors.

● New Test Mode

S-CD plays the same way as before.

If an error such as off focus, spindle unlocking, unreadable sub-code, or sound skipping occurs after setup, its cause and time occurred (in absolute time) are displayed.

During setup, operational status of the control software (internal RAM: CPOINT) is displayed.

These displays and functions are prepared for enhancing aging in the servicing and efficiency of trouble analysis.

(1) Shifting to the New Test Mode

- ① Turn on the current test mode by starting the reset from the key (it varies between the products).
 - ② Select S-CD for the source through the specified procedure including use of the [SOURCE] key, and inserting the disc. Then, press the [Jump Mode Selector] key while maintaining the regulator turned off.
 - ③ After the above operations, the new test mode remains on irrespective of whether the S-CD is turned on or off.
- You can reset the new test mode by turning on the reset start.

* With some products, the new test mode can be reset through the same operations as that employed for shifting to the STBY mode (while maintaining the Acc turned off).

(2) Key Correspondence

Key (Example)	Test mode		New test mode	
	Power Off	Power On	In-play	Error Production
BAND	To power on (offset adjustment performed)	To power off	–	Time/Err.No. switching
▶	–	FWD-Kick	FF/TR+	–
◀	–	REV-Kick	REV/TR-	–
1	–	T.Close (AGC performed) /parameter display switching	Scan	–
2	RF AMP gain switching	Parameter display switching /T.BAL adjustment/T.Open	Mode	–
3	To power on (offset adjustment not performed)	F.Close/RF AGC/F.T.AGC	–	–
6	–	F.Mode switching /T.Close (no AGC)/Jump switching	Auto/Manu	T.No./Time switching

Note: Eject and CD on/off is performed in the same procedure as that for the normal mode.

(3) Cause of Error and Error Code

Code	Class	Contents	Description and cause
40	Electricity	Off focus detected.	FOK goes low. → Damages/stains on disc, vibrations or failure on servo.
41	Electricity	Spindle unlocked.	FOK = Low continued for 50 msec. → Damages/stains on disc, vibrations or failure on servo.
42	Electricity	Sub-code unreadable.	Sub-code was unreadable for 50 msec. → Damages/stains on disc, vibrations or failure on servo.
43	Electricity	Sound skipping detected.	Last address memory function was activated. → Damages/stains on disc, vibrations or failure on servo.

Note: Mechanical errors during aging are not displayed.

The error codes should be indicated in the same way as in the normal mode.

(4) Display of Operational Status (CPOINT) during Setup

Status No.	Contents	Protective action
00	CD+5V ON process in progress.	None
01	Servo LSI initialization (1/3) in progress.	None
02	Servo LSI CRAM initialization in progress.	None
03	Servo LSI initialization (2/3) in progress.	None
04	Offset adjustment (1/3) in progress.	None
05	Offset adjustment (2/3) in progress.	None
06	Offset adjustment (3/3) in progress.	None
07	FZD adjustment in progress.	None
08	Servo LSI initialization (3/3) in progress.	None
10	Carriage move to home position started.	None
11	Carriage move to home position started.	None
12	Carriage is moving toward inner diameter.	Specified 10 seconds has been passed or failure on home switch.
13	Carriage is moving toward outer diameter.	Specified 10 seconds has been passed or failure on home switch.
14	Carriage outer kick in progress.	None
15	Carriage outer diameter feed (1 second) in progress.	None
20	Servo close started.	None
21	Pre-processing for focus search started.	None
22	Spindle rotation and focus search started.	None
23	Waiting for focus close (XSI=Low).	Specified focus search time has been passed.
24	Standing by after focus close is over.	Specified focus search time has been passed.
25	Focus search preprocessing is in progress while setup protection is turned on.	None
26	Focus search preprocessing is in progress while focus recovery is turned on.	None
27	Wait time after focus close is set up.	Off focus.
28	Standing by after focus close is over.	Off focus.
29	Setup (1/2) before T balance adjustment is started.	Off focus.
30	Setup (2/2) before T balance adjustment is started.	Off focus.
31	T balance adjustment started.	Off focus.
32	T balance adjustment (1/2).	Off focus.
33	T balance adjustment (2/2).	Off focus.
34	Waiting for spindle rotation to end. Spindle rough servo.	Off focus.
35	Standing by after spindle rough servo is over.	Off focus.
36	RF AGC started.	Off focus.
37	RF AGC started.	Off focus.
38	RF AGC ending process in progress.	Off focus.
39	Tracking close in progress.	Off focus.
40	Standing by after tracking is closed. Carriage closing in progress.	Off focus.
41	Focus/tracking AGC started.	Off focus.
42	Focus AGC started.	Off focus.
43	Focus AGC in progress.	Off focus.
44	Tracking AGC in progress.	Off focus.
45	Standing by after focus/tracking AGC are over.	Off focus.
46	Spindle processes applicable servo.	Off focus.
47	Check for servo close is started.	Off focus.
48	Check of LOCK pin started.	Off focus or spindle not locked.
49	RF AGC started.	Off focus.
50	RF AGC in progress.	Off focus.
51	Standing by after RF AGC is over.	Off focus.

(5) Display Examples

1) During Setup (When status no. = 11)

TRK No.	MIN.	SEC.
11	11'	11"

2) During Operation (TOC read, TRK search, Play, FF and REV)

The same as in the normal mode.

3) When a Protection Error Occurred

Switch to the following displays (A) and (B) using the [BAND] switch:

(A) Error occurrence timing display in absolute time.

An example: Error occurred in 12th tune at 34'56" in absolute time.

TRK No.	MIN.	SEC.
12	34'	56"

(B) Error No. display

An example: Error #40 (Off focus is detected)

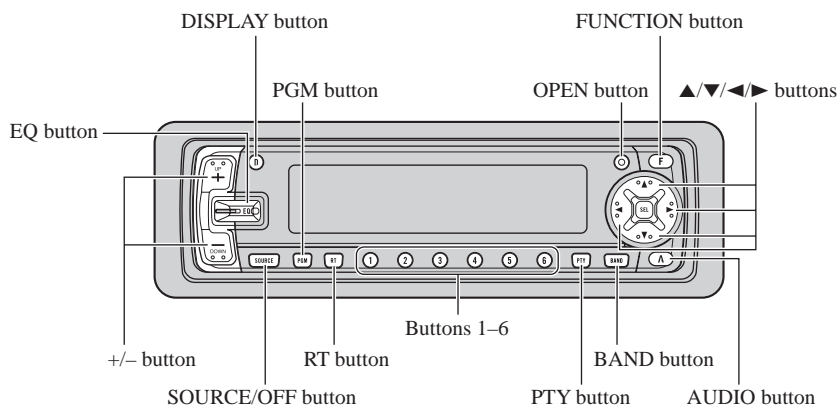
ERROR-40

8. OPERATIONS AND SPECIFICATIONS

8.1 OPERATIONS

Key Finder

Head Unit(DEH-P700R/UC, DEH-P7000R/UC)



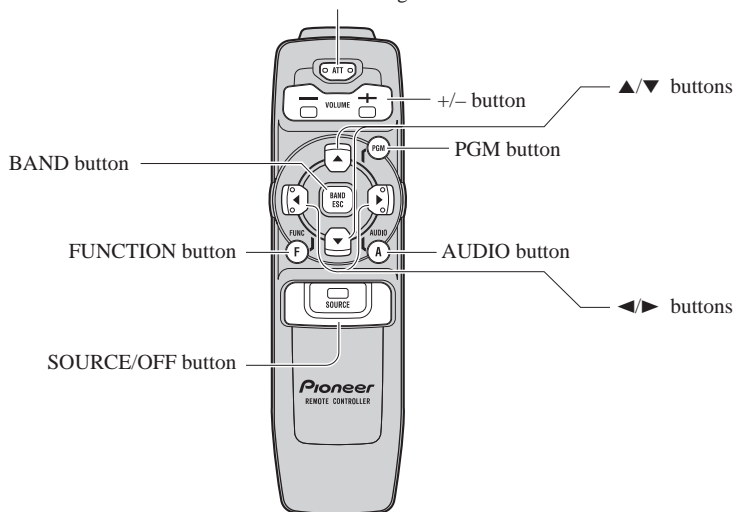
Remote Controller

A remote controller that enables remote operation of the head unit is supplied. Operation is the same as when using buttons on the head unit.

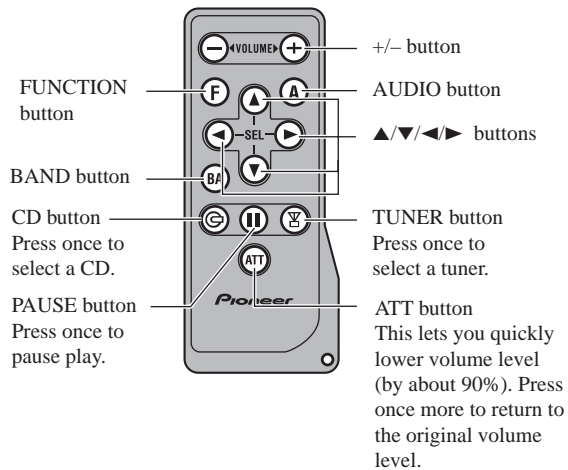
DEH-P700R/UC

ATT button

This lets you quickly lower volume level (by about 90%). Press once more to return to the original volume level.

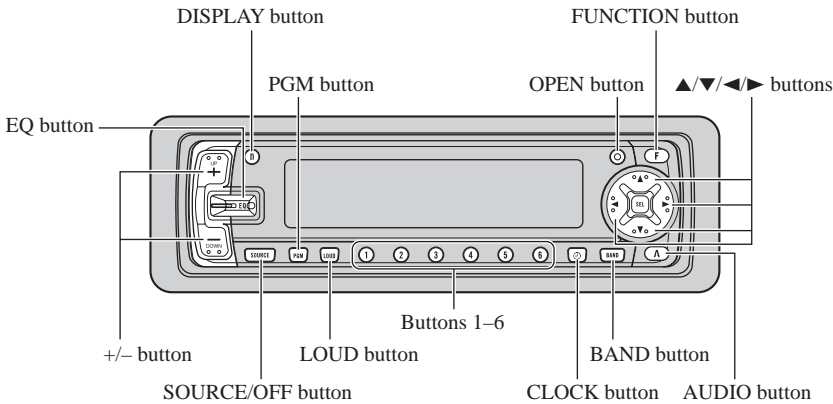


DEH-P7000R/UC



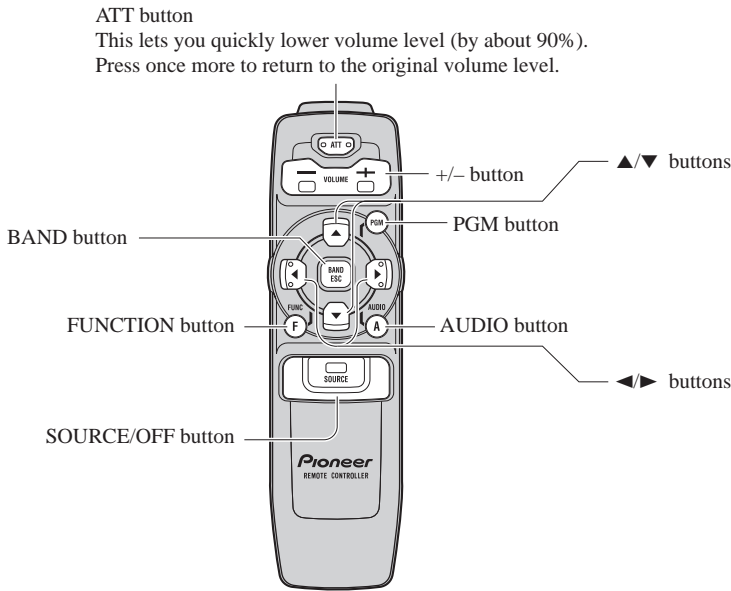
Key Finder

Head Unit(DEH-P7050/ES)



Remote Controller

A remote controller that enables remote operation of the head unit is supplied. Operation is the same as when using buttons on the head unit.



Basic Operation

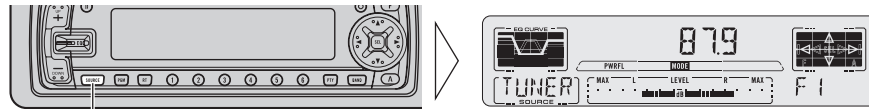
To Listen to Music

The following explains the initial operations required before you can listen to music.

Note:

- Loading a disc in this product.

1. Select the desired source .



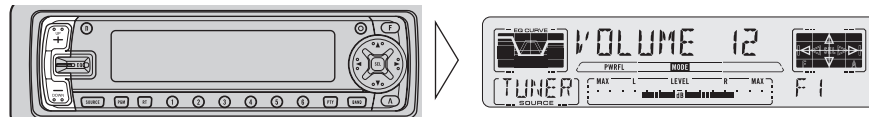
Each press changes the Source ...

Each press of the SOURCE/OFF button selects the desired source in the following order:
Built-in CD player → Tuner → Multi-CD player → AUX

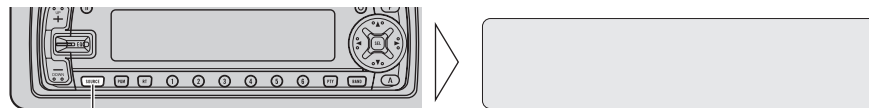
Note:

- In the following cases, the sound source will not change:
 - * No Multi-CD player is connected to this product.
 - * No disc is set in this product.
 - * No magazine is set in the Multi-CD player.
 - * AUX (external input) is set to OFF.

2. Raise or lower the volume.



3. Source OFF.



Hold for 1 second or more

Basic Operation

Basic Operation of Built-in CD Player

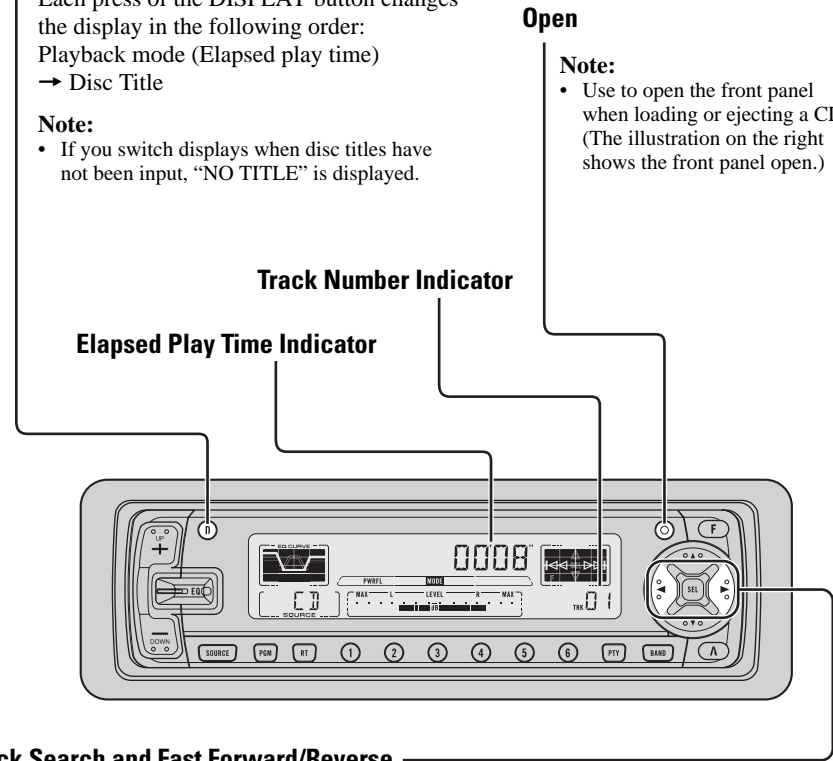
Switching the Display

Each press of the DISPLAY button changes the display in the following order:
Playback mode (Elapsed play time)
→ Disc Title

- Note:**
- If you switch displays when disc titles have not been input, “NO TITLE” is displayed.

Open

- Note:**
- Use to open the front panel when loading or ejecting a CD.
(The illustration on the right shows the front panel open.)



Track Search and Fast Forward/Reverse

- You can select between Track Search or Fast forward/Reverse by pressing the ◀▶ button for a different length of time.

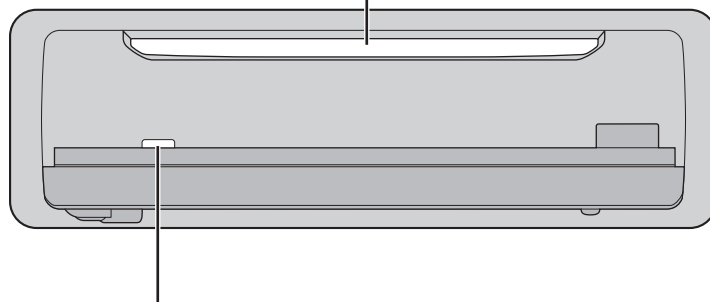
Track Search	0.5 seconds or less
Fast forward/Reverse	Continue pressing

- Note:**
- If a disc cannot be inserted fully or playback fails, make sure the recorded side is down. Push the EJECT button and check the disc for damage before reinserting it.
 - If the built-in CD player cannot operate properly, an error message (such as “ERROR-14”) appears on the display.

Basic Operation

Disc Loading Slot

The built-in CD player plays one standard 12 cm or 8 cm (single) CD at a time. Do not use an adapter when playing 8 cm CD.



Eject

Note:

- The CD function can be turned ON/OFF with the disc remaining in this product.
- Discs left partially inserted after ejection may incur damage or fall out.

Basic Operation

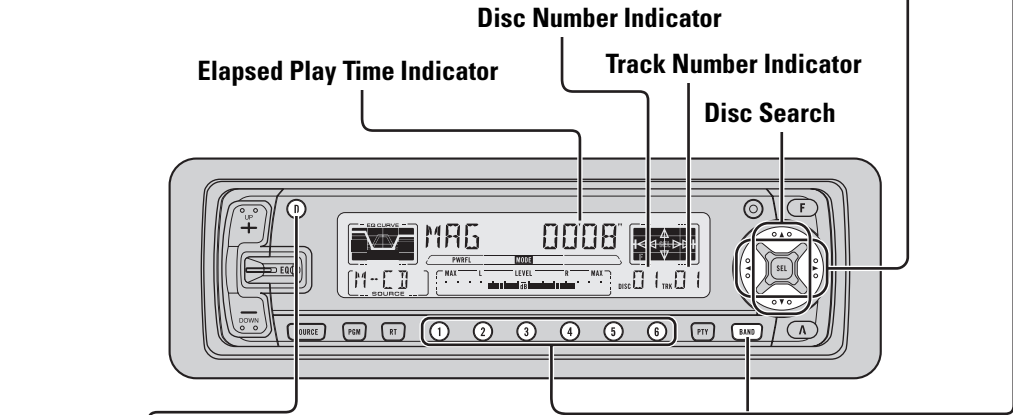
Basic Operation of Multi-CD Player

This product can control a multi-CD player. (With certain old type multi-CD players, using a multiple connection adapter lets you connect multiple units which you can control with this product.)

Track Search and Fast Forward/Reverse

- You can select between Track Search or Fast forward/Reverse by pressing the ◀▶ button for a different length of time.

Track Search	0.5 seconds or less
Fast forward/Reverse	Continue pressing



Switching the Display

Each press of the DISPLAY button changes the display in the following order:
Playback mode (Elapsed play time)
→ Disc Title

Note:

- If you switch displays when disc titles have not been input, "NO TITLE" is displayed.

Switching the Multi-CD Player

Using a multiple connection adapter lets you connect up to three Multi-CD players.

M-CD 1 → M-CD 2 → M-CD 3
(Displayed about for 2 seconds.)

Disc Number Search (for 6-Disc, 12-Disc types)

- You can select discs directly with the 1 to 6 buttons. Just press the number corresponding to the disc you want to listen to.

Note:

- When a 12-Disc Multi-CD Player is connected and you want to select disc 7 to 12, press the 1 to 6 buttons for 2 seconds or longer.

Disc Number Rough Search (for 50-Disc type only)

This handy function lets you select discs loaded in a 50-Disc Multi-CD Player using the 1 to 5 buttons. The 50 discs are divided into five blocks, with each of the 1 to 5 buttons assigned to a block.

- Select the desired block with the 1 to 5 buttons.

Note:

- After completing a rough search, use the ▲ and ▼ buttons to select a desired disc.

Note:

- The multi-CD player may perform a preparatory operation, such as verifying the presence of a disc or reading disc information, when the power is turned ON or a new disc is selected for playback. "READY" is displayed.
- When a magazine is loaded into a 50-Disc type Multi-CD Player, information on all the discs in the magazine is read.
If you start playing a disc on a 50-Disc type Multi-CD Player before reading of information on all discs has been completed, reading of information stops part way through. This will prevent you from using the ITS function. (If you try and use this function, "NOT READY" is displayed.)
If this happens, reading of information begins again when you switch to a component other than the 50-Disc type Multi-CD Player.
- If the multi-CD player cannot operate properly, an error message such as "ERROR-14" is displayed. Refer to the multi-CD player owner's manual.
- If there are no discs in the multi-CD player magazine, "NO DISC" is displayed.
- "LOAD" will be displayed in the following cases:
 - * If the disc in the extra tray is selected.
 - * If the disc is moved from the extra tray to the magazine.
(Refer to the 50-Disc type multi-CD player owner's manual.)
- You cannot use the "Ejecting a Single Disc", "Frequency Play", "Music Group Play" or "ABC Disc Title Search" functions with this product.

When playing a CD TEXT disc on a CD TEXT compatible Multi-CD Player such as the CDX-P656:

- You can use the following two functions. Refer to Multi-CD Player's Owner's Manual for operation details.
 - * Title display switching
 - * Title scroll
- You cannot switch to the Disc Title Input mode in the Detailed Setting Menu.

Basic Operation of Tuner

Manual and Seek Tuning

- You can select the tuning method by changing the length of time you press the ◀/▶ button.

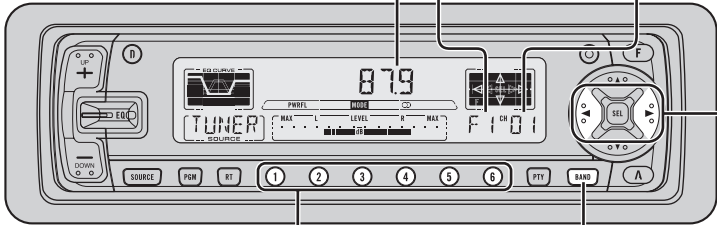
Manual Tuning (step by step)	0.5 seconds or less
Seek Tuning	0.5 seconds or more

- Note:**
- If you continue pressing the button for longer than 0.5 seconds, you can skip broadcast stations. Seek Tuning starts as soon as you stop pressing the button.
 - “◐” stereo indicator lights when a stereo station is selected.

Frequency Indicator

Band Indicator

Preset Number Indicator



Preset Tuning

Band

F1 (FM 1) → F2 (FM 2)
→ F3 (FM 3) → A1 (AM)

- You can memorize broadcast stations in buttons 1 through 6 for easy, one-touch station recall.

Preset station recall	2 seconds or less
Broadcast station preset memory	2 seconds or more

Note:

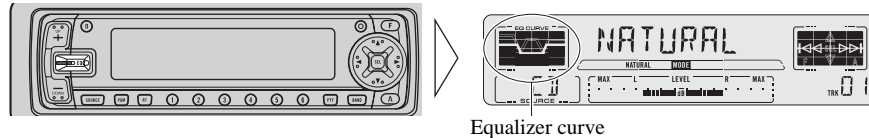
- Up to 18 FM stations (6 in FM1, FM2 and FM3) and 6 AM stations can be stored in memory.
- You can also use the ▲ or ▼ buttons to recall broadcast stations memorized in buttons 1 through 6.

Audio Adjustment

Selecting the Equalizer Curve

You can switch between Equalizer curves.

- Move the EQ button up or down to select the desired Equalizer curve.



Equalizer curve

POWERFUL ↔ NATURAL ↔ VOCAL ↔ CUSTOM ↔ EQ FLAT
↔ SUPER BASS

Note:

- “CUSTOM” stores an equalizer curve you have made adjustments to. (Refer to “Equalizer Curve Adjustment” on page 37.)
- You can create different “CUSTOM” curves for different sources. (The built-in CD player and multi-CD player are set to the same Equalizer Curve Adjustment setting automatically.)

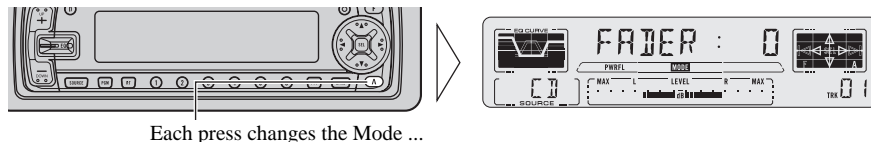
Entering the Audio Menu

With this Menu, you can adjust the sound quality.

Note:

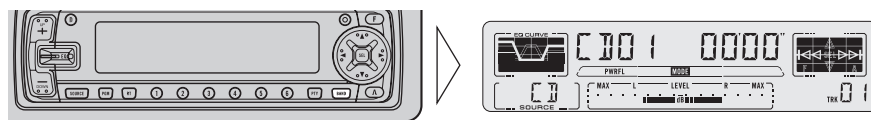
- After entering the Audio Menu, if you do not perform an operation within about 30 seconds, the Audio Menu is automatically canceled.
- Audio Menu functions change depending on the Rear Speaker Lead and Subwoofer Controller setting in the Initial Setting Menu.

1. Select the desired mode in the Audio Menu.



Each press changes the Mode ...

2. Operate a mode.
3. Cancel the Audio Menu.



Audio Menu Functions

The Audio Menu features the following functions.

Balance Adjustment (FADER)

This function allows you to select a Fader/Balance setting that provides ideal listening conditions in all occupied seats.

1. Press the AUDIO button and select Fader/Balance mode (FADER) in the Audio Menu.

2. Adjust front/rear speaker balance with the ▲/▼ buttons.

“FADER F15” – “FADER R15” is displayed as it moves from front to rear.

3. Adjust left/right speaker balance with the ◀/▶ buttons.

“BAL L 9” – “BAL R 9” is displayed as it moves from left to right.



Note:

- When the Rear Speaker Lead setting is “REAR SP:S/W”, you cannot adjust front/rear speaker balance.
- “FADER 0” is the proper setting when 2 speakers are in use.

Equalizer Curve Adjustment (EQ-LOW/MID/HIGH)

You can adjust equalizer curve settings as desired. Adjusted equalizer curve settings are memorized in “CUSTOM”.

1. Press the AUDIO button and select the Equalizer mode (EQ-LOW/MID/HIGH) in the Audio Menu.

2. Select the band you want to adjust with the ◀/▶ buttons.

EQ-LOW ↔ EQ-MID ↔ EQ-HIGH



3. Boost or attenuate the selected band with the ▲/▼ buttons.

The display shows “+6” – “-6”.

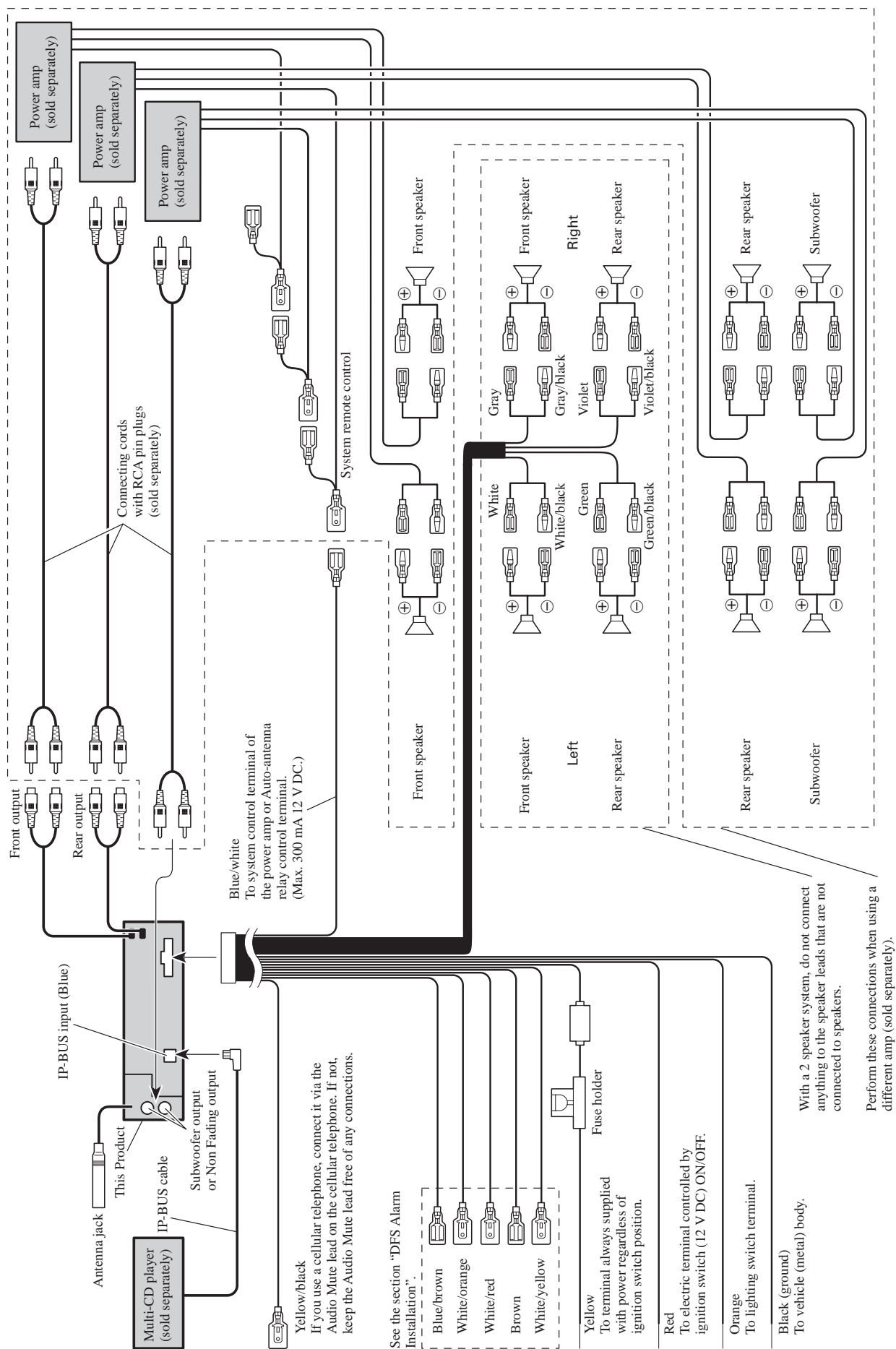


Note:

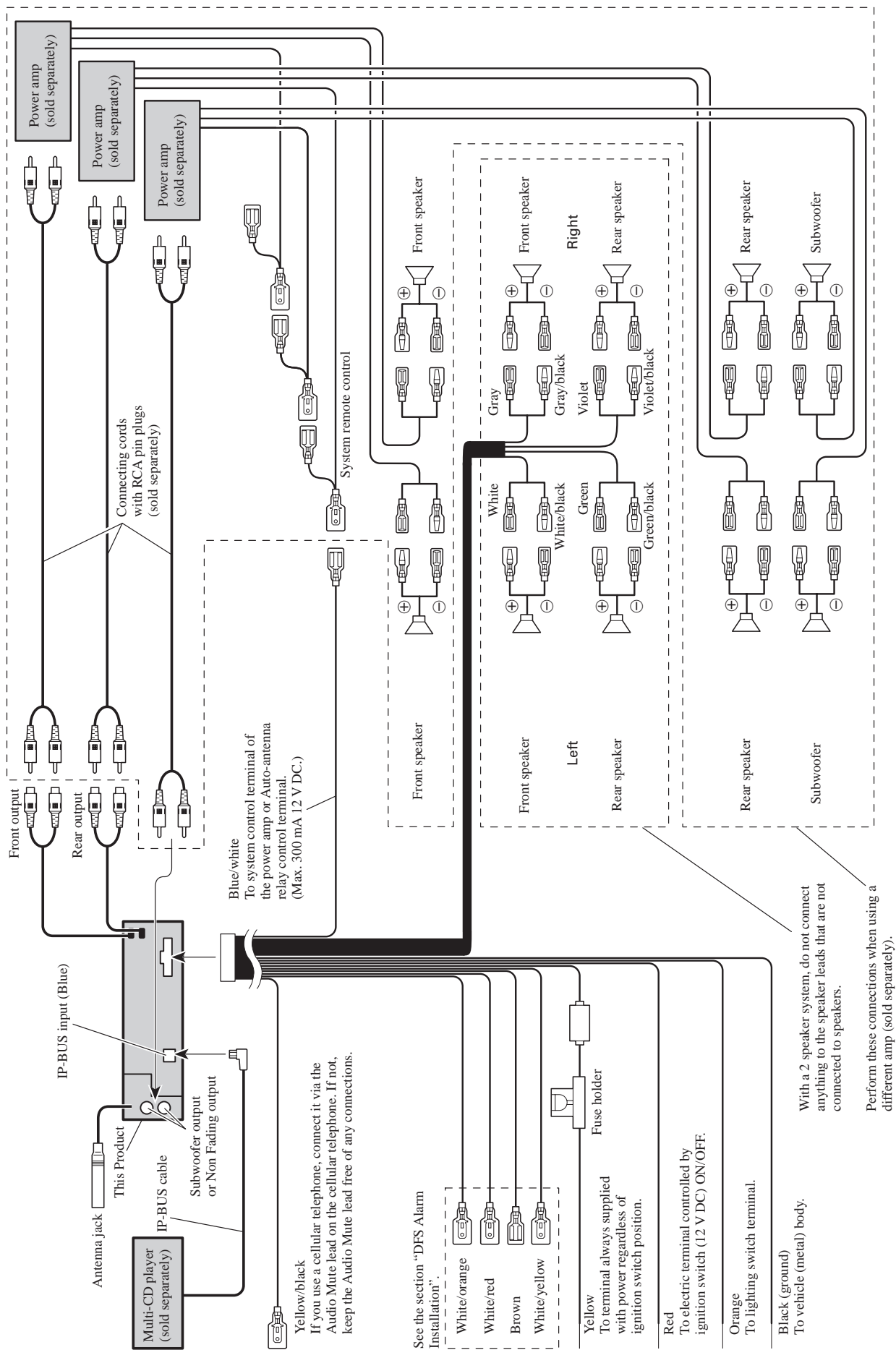
- If you make adjustments when a curve other than “CUSTOM” is selected, the adjusted curve is stored in memory as a “CUSTOM” curve. Also, the displayed curve switches to that selected before adjustments were made.

“CUSTOM”

● DEH-P700R/UC



● **DEH-P7050/ES**



8.2 SPECIFICATIONS

● DEH-P700R/UC, DEH-P7000R/UC

General

Power source	14.4 V DC (10.8 – 15.1 V allowable)
Grounding system	Negative type
Max. current consumption	10.0 A
Dimensions	
(DIN) (chassis)	178 (W) × 50 (H) × 157 (D) mm [7 (W) × 2 (H) × 6-1/8 (D) in.]
(nose)	188 (W) × 58 (H) × 18 (D) mm [7-3/8 (W) × 2-1/4 (H) × 3/4 (D) in.]
(D) (chassis)	178 (W) × 50 (H) × 162 (D) mm [7 (W) × 2 (H) × 6-3/8 (D) in.]
(nose)	170 (W) × 46 (H) × 13 (D) mm [6-3/4 (W) × 1-3/4 (H) × 1/2 (D) in.]
Weight	1.6 kg (3.5 lbs)

Amplifier

Continuous power output is 22 W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.	
Maximum power output	45 W × 4 45 W × 2 ch/4 Ω + 70 W × 1 ch/2 Ω (for Subwoofer)
Load impedance	4 Ω (4 – 8 Ω [2 Ω for 1 ch] allowable)
Preout maximum output level/ output impedance	4.0 V/100 Ω
Equalizer (3-Band Parametric Equalizer)	
(Low)	Frequency: 40/80/100/160 Hz Q Factor: 0.35/0.59/0.95/1.15 (+6 dB when boosted) Level: ±12 dB
(Mid)	Frequency: 200/500/1k/2k Hz Q Factor: 0.35/0.59/0.95/1.15 (+6 dB when boosted) Level: ±12 dB
(High)	Frequency: 3.15k/8k/10k/12.5k Hz Q Factor: 0.35/0.59/0.95/1.15 (+6 dB when boosted) Level: ±12 dB
Loudness contour	
(Low)	+3.5 dB (100 Hz), +3 dB (10 kHz)
(Mid)	+10 dB (100 Hz), +6.5 dB (10 kHz)
(High)	+11 dB (100 Hz), +11 dB (10 kHz) (volume: –30 dB)
HPF	
Frequency	50/80/125 Hz
Slope	–12 dB/oct.
Subwoofer output	
Frequency	50/80/125 Hz
Slope	–18 dB/oct.
Gain	±12 dB

CD player

System	Compact disc audio system
Usable discs	Compact disc
Signal format	Sampling frequency: 44.1 kHz Number of quantization bits: 16; linear
Frequency characteristics	5 – 20,000 Hz (±1 dB)
Signal-to-noise ratio	94 dB (1 kHz) (IHF-A network)
Dynamic range	90 dB (1 kHz)
Number of channels	2 (stereo)

FM tuner

Frequency range	87.9 – 107.9 MHz
Usable sensitivity	10 dBf (1.0 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity	15 dBf (1.7 μV/75 Ω, mono)
Signal-to-noise ratio	70 dB (IHF-A network)
Distortion	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response	30 – 15,000 Hz (±3 dB)
Stereo separation	40 dB (at 65 dBf, 1 kHz)
Selectivity	70 dB (2ACA)
Three-signal intermodulation (desired signal level)	30 dBf (two undesired signal level: 100 dBf)

AM tuner

Frequency range	530 – 1,710 kHz
Usable sensitivity	18 μV (S/N: 20 dB)
Selectivity	50 dB (±10 kHz)

Note:

- Specifications and the design are subject to possible modification without notice due to improvements.

Power source	14.4 V DC (10.8 – 15.1 V allowable)
Grounding system	Negative type
Max. current consumption	10.0 A
Dimensions	
(DIN) (chassis)	178 (W) × 50 (H) × 157 (D) mm
(nose)	188 (W) × 58 (H) × 18 (D) mm
(D) (chassis)	178 (W) × 50 (H) × 162 (D) mm
(nose)	170 (W) × 46 (H) × 13 (D) mm
Weight	1.6 kg

Continuous power output is 22 W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.

Maximum power output 45 W × 4
45 W × 2 ch/4 Ω + 70 W × 1 ch/2 Ω (for Subwoofer)

Load impedance 4 Ω (4–8 Ω [2 Ω for 1 ch] allowable)

Preout maximum output level/
output impedance 4.0 V/100 Ω

Equalizer (3-Band Parametric Equalizer)

(Low) Frequency: 40/80/100/160 Hz
Q Factor: 0.35/0.59/0.95/1.15
(+6 dB when boosted)
Level: ± 12 dB

(Mid) Frequency: 200/500/1k/2k Hz
Q Factor: 0.35/0.59/0.95/1.15
(+6 dB when boosted)
Level: +12 dB

(High) Frequency: 3.15k/8k/10k/12.5k Hz
Q Factor: 0.35/0.59/0.95/1.15
(+6 dB when boosted)
Level: +12 dB

Loudness contour

(Low)	+3.5 dB (100 Hz), +3 dB (10 kHz)
(Mid)	+10 dB (100 Hz), +6.5 dB (10 kHz)
(High)	+11 dB (100 Hz), +11 dB (10 kHz)

(volume: -30 dB)

HPF
Frequency 50/80/125 Hz
Slope -12 dB/oct.

Subwoofer output

Frequency	50/80/125 Hz
Slope	-18 dB/oct.
Level	± 12 dB

System	Compact disc audio system
Usable discs	Compact disc
Signal format	Sampling frequency: 44.1 kHz Number of quantization bits: 16; linear
Frequency characteristics	5 – 20,000 Hz (± 1 dB)
Signal-to-noise ratio	94 dB (1 kHz) (IEC-A network)
Dynamic range	90 dB (1 kHz)
Number of channels	2 (stereo)

Frequency range	87.5 – 108 MHz
Usable sensitivity	10 dBf (1.0 μ V/75 Ω , mono, S/N: 30 dB)
50 dB quieting sensitivity	15 dBf (1.7 μ V/75 Ω , mono)
Signal-to-noise ratio	70 dB (IEC-A network)
Distortion	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response	30 – 15,000 Hz (\pm 3 dB)
Stereo separation	40 dB (at 65 dBf, 1 kHz)

Frequency range	531 – 1,602 kHz (9 kHz)
	530 – 1,710 kHz (10 kHz)
Usable sensitivity	18 μ V (S/N: 20 dB)
Selectivity	50 dB (\pm 9 kHz)
	50 dB (\pm 10 kHz)

- Specifications and the design are subject to possible modification without notice due to improvements.

Service Manual

Pioneer

ORDER NO.
CRT2300

CD MECHANISM MODULE

CX-916

- This service manual describes the operation of the CD mechanism incorporated in models listed in the table below.
- When performing repairs use this manual together with the specific manual for model under repair.

Model	Service Manual	CD Mechanism Module	Mechanism Unit
DEH-P400/X1N/UC DEH-P4000/X1N/UC DEH-P4050/X1N/ES	CRT2308	CXK5200	CXB3100
DEH-P3000R/X1N/EW	CRT2309	CXK5200	CXB3100
DEH-P200/X1N/UC DEH-P300/X1N/UC DEH-P3000/X1N/UC	CRT2310	CXK5200	CXB3100
DEH-P20/X1N/UC DEH-P2000/X1N/UC DEH-P2050/X1N/ES	CRT2311	CXK5200	CXB3100
DEH-2000R/X1N/EW DEH-2020R/X1N/GR DEH-2030R/X1N/EW	CRT2312	CXK5200	CXB3100
DEH-10/X1N/UC DEH-1000/X1N/UC DEH-1050/X1N/ES	CRT2313	CXK5200	CXB3100

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MC-Service

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1. CIRCUIT DESCRIPTIONS

The LSI (UPD63710GC) used on this unit comprises five main blocks ; the pre-amp section, servo, signal processor, DAC and CD text decoder (not used on this model). It also equips with nine automatic adjustment functions.

1.1 PRE-AMP SECTION

This section processes the pickup output signals to create the signals for the servo, demodulator and control.

The pickup output signals are I-V converted by the pre-amp with the built-in photo-detector in the pickup, then added by the RF amp to obtain RF, FE, TE, TE zero cross and other signals.

This pre-amp section is built in the servo LSI UPD63710GC (IC201). The following describes function of each section.

Since this system has a single power supply (+5V), the reference voltage for this LSI and pickup are set to REFO (2.5V). The REFO is obtained by passing the REFOUT from the LSI through the buffer amplifier. The REFO is output from Pin 89 of this LSI. All measurements are done using this REFO as reference.

Note : During the measurement, do not try to short the REFO and GND.

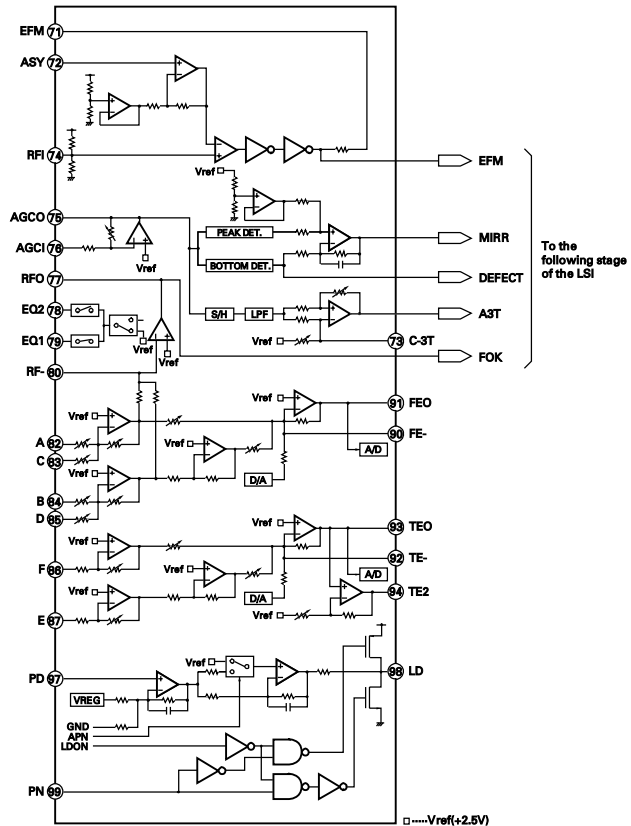


Fig.1 : BLOCK DIAGRAM OF BUILT-IN RF AMPLIFIER

1) APC Circuit (Automatic Power Control)

When the laser diode is driven with constant current, the optical output has large negative temperature characteristics. Thus, the current must be controlled from the monitor diode so that the output may be constant. APC circuit is for it. The LD current is obtained by measuring the voltage between LD1 and V+5. The value of this current is about 35mA.

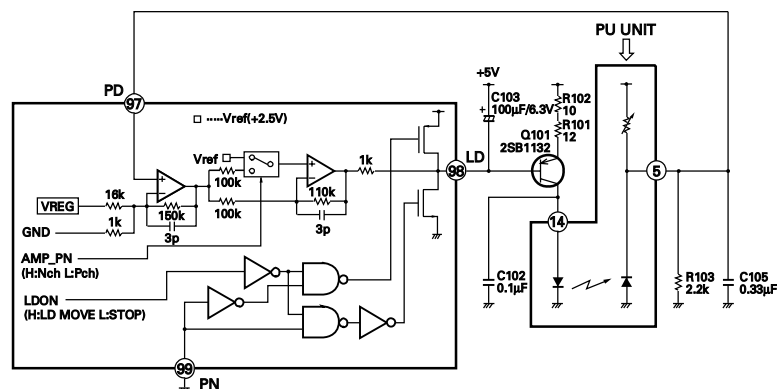


Fig.2 : APC CIRCUIT

2) RF Amplifier and RFAGC Amplifier

The photo-detector outputs (A + C) and (B + D) are added, amplified and equalized on this LSI and then output to the RFI terminal as the RF signal. (The eye pattern can be checked by this signal.)

The RFI voltage low frequency component is :

$$RFI = (A + B + C + D) \times 3.2$$

RFI is used on the FOK generator circuit and RF offset adjusting circuit.

R214 is an offset resistor for maintaining the bottom reference voltage of the RFI signal at 1.5 VDC. The D/A output used for the RF offset adjustment (to be described later) is entered via this resistor.

After the RFI signal from Pin 77 is externally AC coupled, entered to Pin 76 again, then amplified on the RFAGC amplifier to obtain the RFO signal.

The RFAGC adjustment function (to be described later) built-in the LSI is used for switching feedback gain of the RFAGC amplifier so that the RFO output may go to $1.5 \pm 0.3V_{pp}$.

The RFO signal is used for the EFM, DFCT, MIRR and RFAGC adjustment circuits.

3) RFOK Circuit

This circuit generates the signal that is used for indicating the timing of closing the focus or state of the focus close currently being played. This signal is output from Pin 4 as the FOK signal. It goes high when the focus close and in-play.

The RFOK signal is generated by holding DC level of the RFI at its peak with the succeeding digital section, then comparing it at a specific threshold level. Thus, the RFOK signal goes high even if the pit is absent. It indicates that the focus close can take place on the disc mirror surface, too.

This signal is also supplied to the micro computer via the low pass filter as the FOK signal and used for the protection and the RF amplifier gain switching.

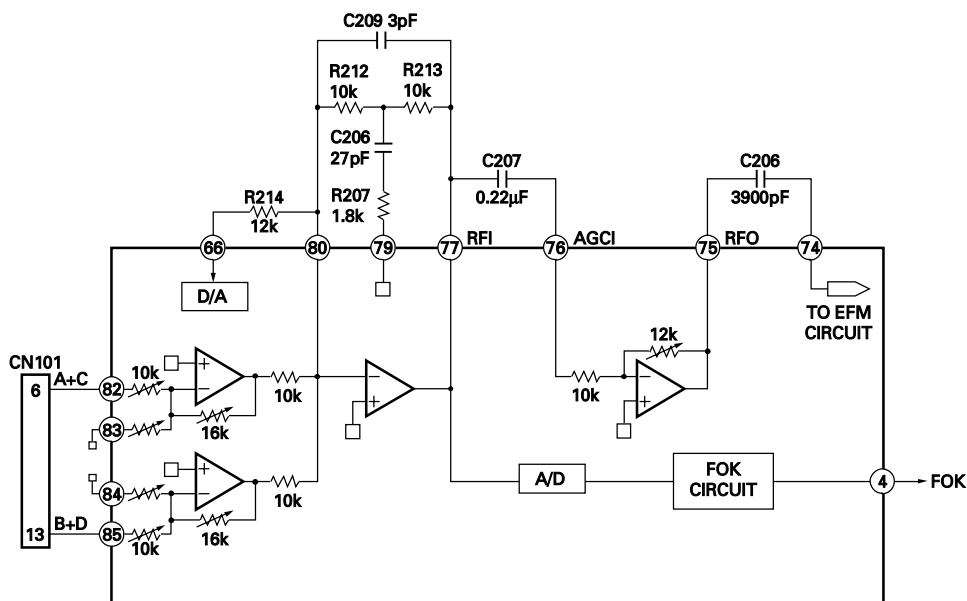


Fig.3 : RFAMP, RFAGC AND FOK CIRCUIT

4) Focus Error Amplifier

The photo-detector outputs (A + C) and (B + D) are passed through a differential amplifier and an error amplifier, and then (A + C - B - D) is output from Pin 91 as the FE signal.

The FE voltage low frequency component is :

$$FE = (A + C - B - D) \times \frac{16k}{10k} \times \frac{(80k/300k)}{20k}$$

$$= (A + C - B - D) \times 5$$

Using REFO as the reference, an S-curve of approximately 1.5 Vpp is obtained for the FE output. The final-stage amplifier cutoff frequency is 11.4 kHz.

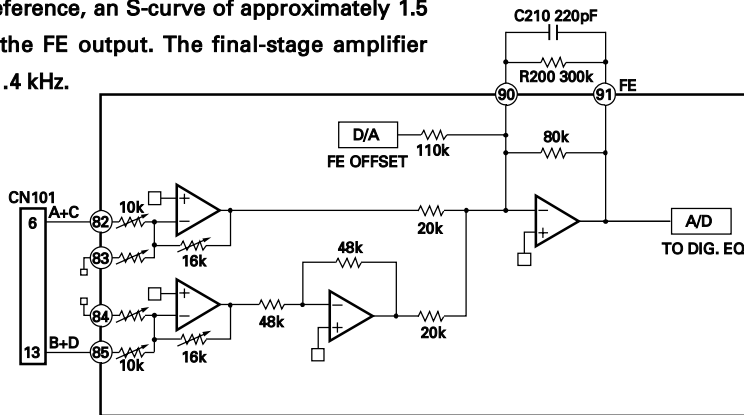


Fig.4 : FOCUS ERROR AMPLIFIER

5) Tracking Error Amplifier

The photo-detector outputs E and F are passed through a differential amplifier and an error amplifier, and then (E - F) is output from Pin 93 as the TE signal. The TE voltage low frequency component is :

$$TE = (E - F) \times \frac{224k}{(56k+27k)} \times \frac{80k}{38k}$$

$$= (E - F) \times 5.7 \text{ (Effective LSI output is 5.0).}$$

Using REFO as the reference, the TE waveform of approximately 1.3 Vpp is obtained for the TE output. The final-stage amplifier cutoff frequency is 20 kHz.

6) Tracking Zero Crossing Amplifier

TEC signal (the tracking zero crossing signal) is obtained by multiplying the TE signal four times. It is used for locating the zero crossing points of the tracking error. The zero cross point detection is done for the following two reasons :

- ① To count tracks for carriage moves and track jumps.
- ② To detect the direction in which the lens is moving when the tracking is closed (it is used on the tracking brake circuit to be described later).

The TEC signal frequency range is 300 Hz to 20 kHz.

$$TEC \text{ voltage} = TE \text{ level} \times 4$$

Theoretical TEC level is 5.2V. The signal exceeds D-range of the operational amplifier and thus is clipped. It, however, can be ignored since this signal is used by the servo LSI only at the zero crossing point.

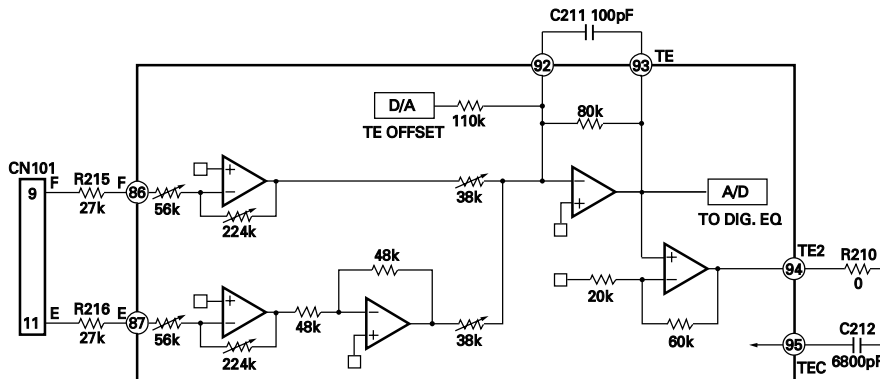


Fig.5 TRACKING ERROR AMPLIFIER AND TRACKING ZERO CROSSING AMPLIFIER

10) EFM Circuit

This circuit is used for converting the RF signal to digital signal consisting of "0" and "1". The RFO signal from Pin 75 is externally AC coupled, entered to Pin 74, then applied to the EFM circuit.

Loss of the RF signal due to scratches or stains on the disc, or vertical asymmetry of the RF due to variations in the discs manufactured can't be eliminated by AC coupling alone. This circuit, therefore, controls the reference voltage ASY on the EFM comparator by use of the fact that "0" and "1" appear fifty fifty in the EFM signal. By this arrangement, the compare level is constantly maintained at almost center of the RFO signal level. The reference voltage ASY is generated when the EFM comparator output is passed through the low pass filter. The EFM signal is output from Pin 71. It is a 2.5 Vp-p amplitude signal centering on REFO.

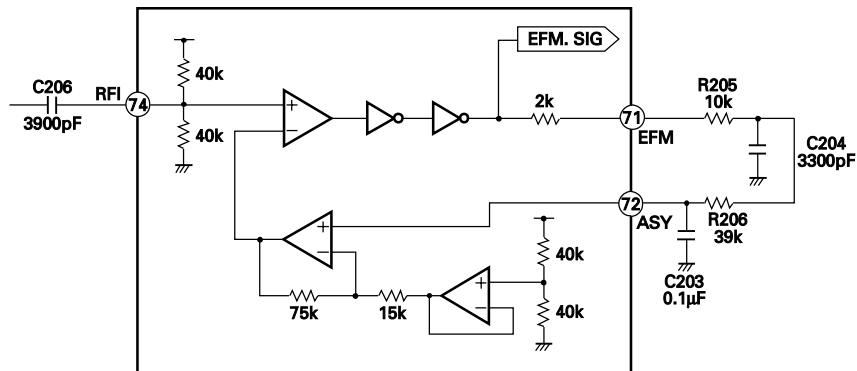


Fig.9 : EFM CIRCUIT

1.2 SERVO SECTION (UPD63710GC : IC201)

The servo section controls the operations such as error signal equalizing, in focus, track jump and carriage move. The DSP is the signal processing section used for data decoding, error correction and interpolation processing, among others.

This circuit implements analog to digital conversion of the FE and TE signals generated on the pre-amplifier, then outputs them through the servo block as the drive signal used on the focus, tracking and carriage system. The EFM signal is decoded on the signal processing section and finally output via the D/A converter as the audio signal. The decoding process also generates the spindle servo error signals which is fed to the spindle servo block to generate the spindle drive signal.

The focus, tracking, carriage and spindle drive signals are then amplified on the driver IC BA5985FM (IC301) and fed to respective actuators and motors.

1) Focus Servo System

The focus servo main equalizer is consisted of the digital equalizer. Fig.10 shows the focus servo block diagram.

When implementing the focus close on the focus servo system, the lens must be brought within the in-focus range. Therefore, the lens is moved up and down according to the triangular focus search voltage to find the focus point. During this time, the spindle motor is kicked and kept rotating as a set speed.

The servo LSI monitors the FE and RFOK signals and automatically carries out the focus close at an appropriate point.

The focus closing is carried out when the following three conditions are met :

- ① The lens approaches the disc from its current position.
- ② RFOK = "H"
- ③ The FZC signal is latched at high after it has once crossed the threshold set on the FZD register (Edge of the FZD).

As the result, the FE (= REFO) is forced to low.

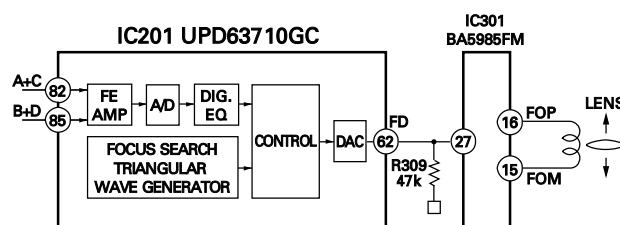


Fig.10 : FOCUS SERVO BLOCK DIAGRAM

When the above conditions are all met and the focus is closed, the XSI pin goes to low from the current high, then 40 ms later, the microcomputer begins to monitor the RFOK signal after it that has been passed through the low pass filter.

When the RFOK signal is recognized as low, the microcomputer carries out various actions including protection.

Fig.11 a series of operations carried out relevant to the focus close (the figure shows the case where focus close is not available).

You can check the S-curve, search voltage and actual lens behavior by selecting the Display 01 for the focus mode select in the test mode, and then pressing the focus close button.

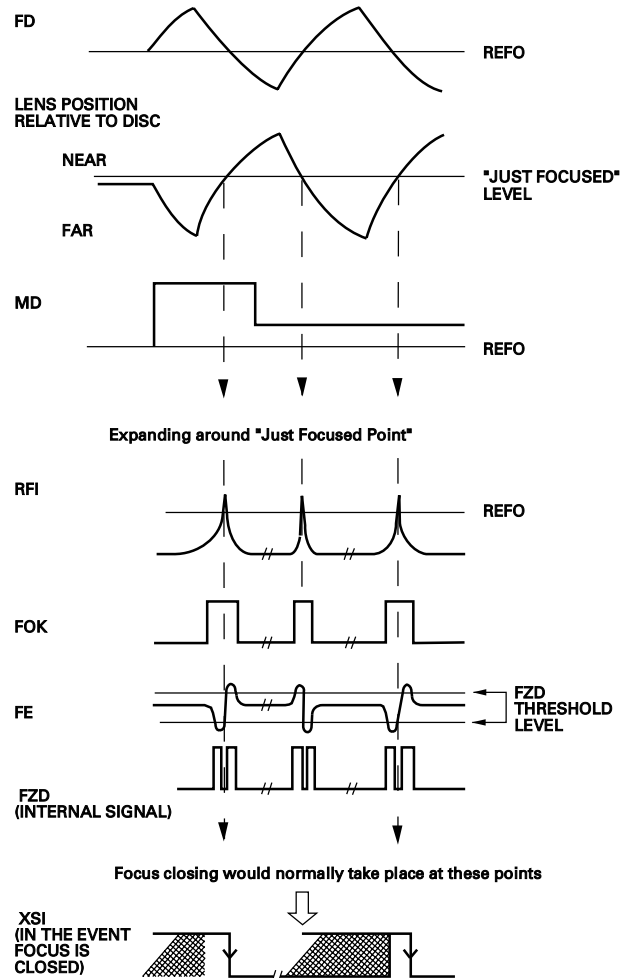


Fig.11 : FOCUS CLOSE SEQUENCE

2) Tracking Servo System

The digital equalizer is employed for the main equalizer on the tracking servo. Fig.12 shows the tracking servo block diagram.

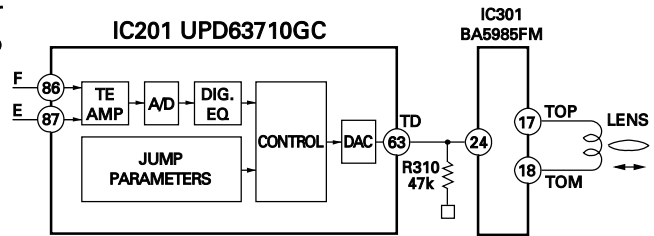


Fig.12 : TRACKING SERVO BLOCK DIAGRAM

a) Track jump

When the LSI receives the track jump command from the microcomputer, the operation is carried out automatically by the auto sequence function of the LSI. This system has five types of track jumps used for the search : 1, 4, 10, 32 and 32×3 . In the test mode, in addition to three jumps (1, 32 and 32×3), move of the carriage can be check by mode selection. For track jumps, the microcomputer sets almost half of tracks (5 tracks for 10 tracks, for instance) and counts the set number of tracks using the TEC signals. When the microcomputer has counted the set number of tracks, it outputs the brake pulse for a fixed period of time (duration can be specified with the command) to stop the lens. In this way, the tracking is closed and normal play is continued.

To improve the servo loop retracting performance just after the track jump, the brake circuit is turned on for 50 ms after the brake pulse has been terminated to increase gain of the tracking servo.

Fast forward and reverse operations are realized by through consecutive signal track jumps. The speed is about 10 times as fast as that in the normal mode.

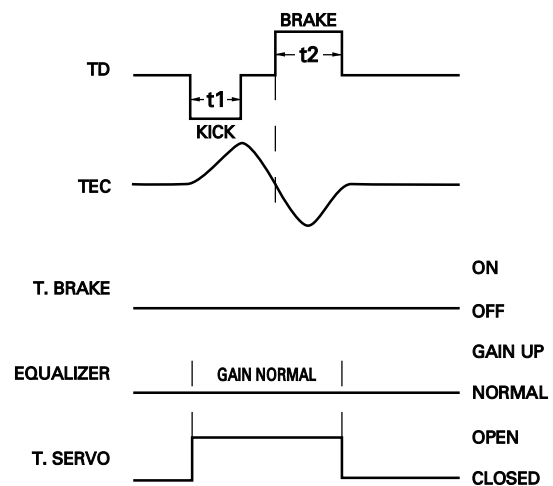


Fig.13 : SINGLE TRACK JUMP

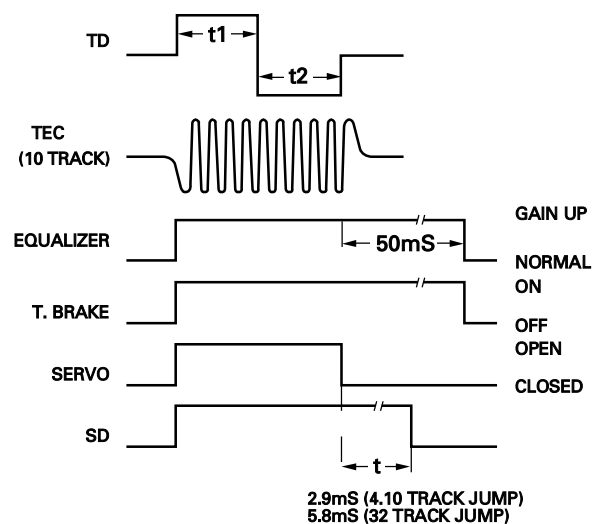
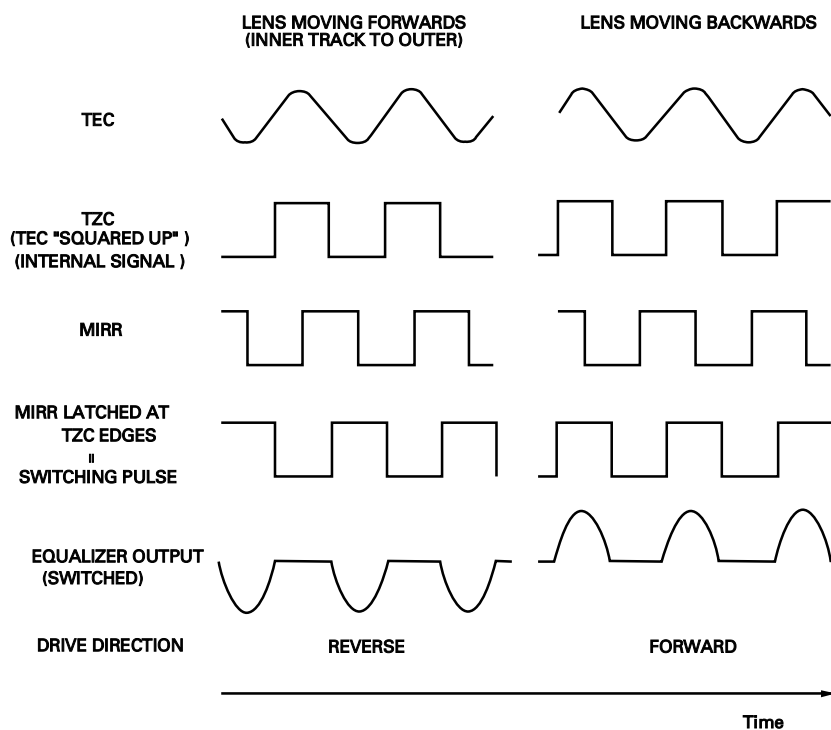


Fig.14 : MULTI-TRACK JUMP

b) Brake Circuit

The servo retracting performance can be deteriorate during the setup or track jump operation. In this connection, the brake circuit is used to ensure steady retract of the tracking servo. The brake circuit detects in which direction the lens is moving, then slows down its move by outputting the drive signal that moves the lens into the opposite direction alone. Track slippage direction is determined by referencing the TEC and MIRR signals and their phase.



Note : Equalizer output assumed to have same phase as TEC.

Fig.15 : TRACKING BRAKE CIRCUIT

3) Carriage Servo System

The carriage servo supplies the tracking equalizer's low-frequency component (lens position data) output to the carriage equalizer, then, after providing a fixed amount of gain to it, outputs the drive signal from the LSI. This signal is then applied to the carriage motor via the driver IC.

When the lens offset reaches a certain level during play, the entire pickup must be moved into the forward direction. Therefore, the equalizer gain is set to the level that allows to generate a voltage higher than the carriage motor starting voltage. In actual operations, a certain threshold level is set for the equalizer output by the servo LSI so that the drive voltage may be output from the servo LSI only when the equalizer output exceeds the threshold level. This arrangement helps reducing power consumption. Also, due to disc eccentricity or other factors, the equalizer output may cross the threshold level a number of times. In this case, the drive voltage output from the LSI will have pulse-like waveform.

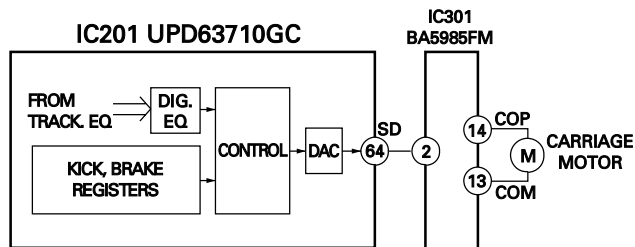


Fig.16 : CARRIAGE SERVO BLOCK DIAGRAM

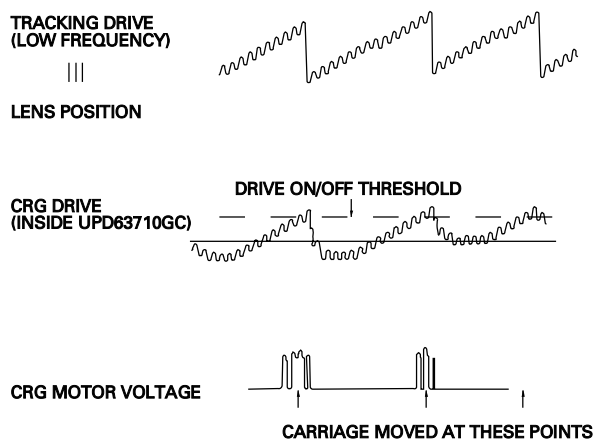


Fig.17 : CARRIAGE SIGNAL WAVEFORM

4) Spindle Servo System

The spindle servo has the following modes.

① Kick :

This mode is used for accelerating the disc rotation during setup.

② Offset :

(a) After the kick is over in the setup, this mode is turned on until changing to rough servo mode.

(b) When focus is lost during play, this mode is turned on until the focus is restored.

Both of the above are used for maintaining the disc rotation rate near to the specified rate.

③ Applicable servo :

The CLV servo mode is turned on for the normal operations.

In the EFM demodulation block, the frame sync signal and internal counter output signal are sampled for every WFCK/16 and a signal is produced for indicating whether or not they are matching.

They are determined to be asynchronous only when this signal fails to match 8 times in succession. In all other cases, above two signals are assumed to be synchronous. In the applicable servo mode, the retracting servo is automatically selected if the two signals are synchronous. If not, the regular servo is automatically selected.

④ Brake :

This mode is turned on when stopping the spindle motor.

The microcomputer outputs the brake voltage through the servo LSI. The LSI monitors the EFM waveform and, if its longest pattern exceeds a certain interval (if the rotation is sufficiently slow), the flag is set the LSI and the microcomputer turns off the brake voltage. When the flag is not up within a specified period time, the microcomputer switches the mode from the brake to the stop mode, and maintains this mode for a fixed period of time. If this stop mode is continued for a fixed period of time, the disc will be ejected.

⑤ Stop :

This mode is used for powering on the system and the eject operation. When this mode is turned on, voltage across the spindle motor is 0V.

⑥ Rough servo :

This mode is used for when the carriage feed (carriage mode for the long search, etc.) is turned on. The linear speed is calculated from the EFM waveform and high or low level is entered to the spindle equalizer. In the test mode, this mode is also used for the grating check.

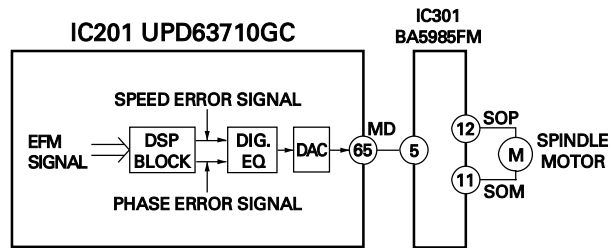


Fig.18 : SPINDLE SERVO MOTOR BLOCK DIAGRAM

1.3 AUTOMATIC ADJUSTMENT FUNCTIONS

Every circuit adjustment on the CD-LSI of this system is automated.

Every circuit adjustment is automatically implemented when the disc is inserted or the CD mode is selected from the source key. The following describes how the adjustments are executed.

1) FZD Cancel Setting

This setting is used for executing the focus close operation without fail.

When power is turned on, the FE offset level is read and a voltage opposite to this offset value is written to the CRAM on the IC to cancel the offset. In this manner, the FZD threshold level can be set to a constant value (+240mV), thereby ensuring to meet one of the requirements for the IC to execute the focus close that "the FZD signal is latched at high".

2) Automatic Adjustment of TE, FE and RF Offset

Using REFO as the reference, this function adjusts the pre-amp TE, FE and RF offsets to the respective target value when power is turned on (targets values of the TE, FE and RF are 0, 0 and -1V, respectively).

The following is the adjustment procedure :

- (1) Respective offset (LD off) is read by the microcomputer via the servo LSI.
- (2) The microcomputer calculates the voltages to be corrected from the read values, then sets them to the specified field.

3) Automatic Adjustment of Tracking Balance (T. BAL)

This adjustment is used for eliminating differences between the pickup E and F channels outputs by adjusting gain of the amplifier on the LSI. In the actual operation, the TE waveform is adjusted so that it may be vertically symmetric with REFO.

The following is the adjustment procedure :

- (1) Make sure the focus close is complete.
- (2) Kick the lens in the radial direction to generate the TE waveform.
- (3) At this time, the microcomputer reads the TE signal offset value (via the servo LSI) being calculated by the LSI.

- (4) The microcomputer determines if the read offset value is positive, negative or zero.

If the offset value = 0, the adjustment is terminated.

If the offset value = A positive or negative value, gain of the E and F channels amplifiers are modified according the predetermined rule.

Then above steps (2) through (4) are repeated until the "Offset value = 0" or "Specified limit count" is reached.

4) Automatic Adjustment of FE Bias

This adjustment is intended at maximizing the RFI level by optimizing the focus point in-play. This adjustment utilizes the phase difference between the RF waveform 3T level and the focus error signal when disturbance is applied.

Since disturbance is applied to the focus loop, this adjustment is designed to take place in the same timing as the auto gain control (to be described later).

The following is the adjustment procedure :

- (1) Disturbance is injected to the focus loop by the command from the microcomputer (within the servo LSI).
- (2) The LSI detects fluctuation of the RF signal 3T component level.
- (3) The LSI determines relationship between fluctuation of the 3T component and the injected disturbance to detect magnitude and direction of the off-focus introduced.
- (4) The microcomputer reads the detected results from the LSI.
- (5) The microcomputer calculates necessary correction, then hands the calculated value to the bias adjustment term set on the LSI.

This adjustment is repeated several times, as it is so with the auto gain control, to ensure higher accuracy.

5) Focus and Tracking Automatic Gain Control

This function is used for implementing automatic control of the focus and tracking loop gain.

The following is the adjustment procedure :

- (1) Inject disturbance to the servo loop.
- (2) Extract the error signal (FE and TE) generated at when the disturbance is applied to obtain the signals G1 and G2 via the B.P.F.
- (3) The microcomputer reads the G1 and G2 signals via the LSI.
- (4) Based on the necessary correction calculated by the microcomputer, the LSI performs the loop gain adjustment.

Above adjustments are repeated several times to ensure higher adjustment accuracy.

6) Automatic RF Level Adjustment (RFAGC)

This adjustment is used for implementing intended signal transmission successfully by adjusting unevenness of the RF signal (RFO) levels, that results from disc and machine relevant factors, to a target value. The adjustment is actually done by varying gain of the amplifier provided between the RFI and RFO.

The following is the adjustment procedure :

- (1) Using the command, the microcomputer reads the output from the RF level detection circuit on the servo LSI.
- (2) Based on the read value, the microcomputer calculates an amplifier gain that will produce the target RFO level.
- (3) The microcomputer sends the corresponding command to the servo LSI so that the above gain value may be set.

This adjustment takes place at the following timing :

- When the focus close alone is completed during the setup process.
- Just before the setup is completed (just before the play takes place).
- After the off-focus has been corrected during the play.

7) Adjustment of Pre-Amp Stage Gain

It is used for adjusting the entire RFAMP (FE, TE and RF amplifiers) to +6dB or +12dB depending on given gain level when reflected light from the disc is significantly below the required level due to stained lens. This phenomena can be noticed when playing back the CD-RW.

The following is the adjustment procedure :

When reflected light from disc is judged to be significantly below the required level during the setup, set the entire RFAMP to +6dB or +12dB. In this case, if the gain is modified, the setup have to be repeated from the first step.

Through the adjustment, if you judged the play becomes available by setting the entire RFAMP to +6dB, +6dB should be selected for the setup next time on.

See the figure below :

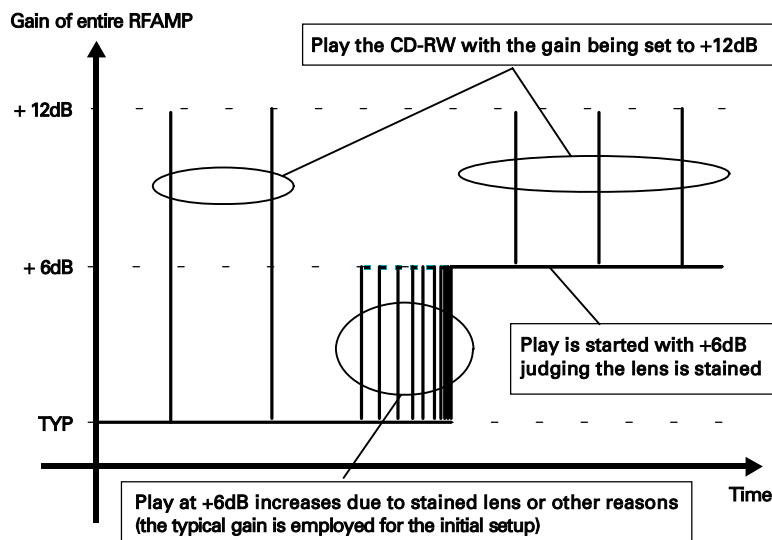


Fig.19 : CONCEPTUAL DIAGRAM OF PRE-AMP GAIN ADJUSTMENT

8) Initial Adjusting Values

All the automatic adjustments are implemented using the previous adjustment values as the initial values unless the microcomputer power (the backup power) is not turned off (though there are some exceptions).

When the backup is turned off, automatic adjustment is executed based on the initial values rather than the previous adjustment values.

9) Displaying Coefficients After Adjustment

You can display and check results of some automatic adjustments (FE and RF offset, FZD cancel and F / T / RFAGC) from the test mode. The following coefficients are displayed in each automatic adjustment :

(1) FE and RF offset and FZD cancel

Reference value = 32 (The coefficient of 32 indicates that no adjustment was required).

The results are displayed in multiples of approximately 40 mV.

An example : When FZD cancel coefficient = 35

$$35 - 32 = 3$$

$$3 \times 40 \text{ mV} = 120 \text{ mV}$$

Since the corrected value is approximately +120 mV, the FE offset before adjustment was -120 mV.

(2) F and T gain adjustment

Reference value = Focus/Tracking = 20

A coefficient displayed indicates an amount of adjustment conducted on the reference value.

An example : When AGC coefficient = 40

$40/20$ = Overall gain has been doubled (+6dB). (The original loop gain of 1/2 has been doubled to have the targeted overall gain.)

(3) RF level adjustment (RFAGC)

Reference value = 8

Coefficient = 9 to 15 The direction in which the RF level is increased (the gain is increased).

Coefficient = 7 to 0 The direction in which the RF level is decreased (the gain is decreased).

Incrementing or decreasing the coefficient by "1" varies the gain by 0.7 to 1dB.

Maximum gain = Typically +6.5dB. Coefficient at this time is 15.

Minimum gain = Typically -6.0dB. Coefficient at this time is 0.

1.4 POWER SUPPLY AND LOADING SECTION

The power supply of the system uses VD (8.3V) from the mother board. VD is fed to 5 channel CD driver IC, 5V Reg IC and disc detection LED.

The microcomputer turns on or off the CD driver and the 5V using "CONT" and "CD5VON", respectively. The loading drive is turned on or off by the input signals "CDEJET" and "CDLOAD". No control terminal is provided for turning the loading drive on or off.

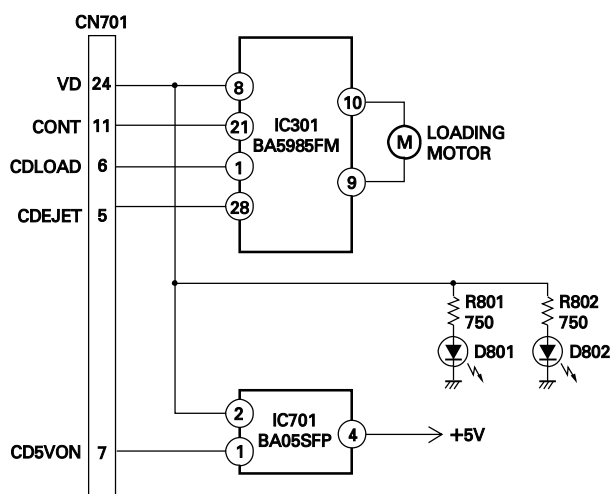
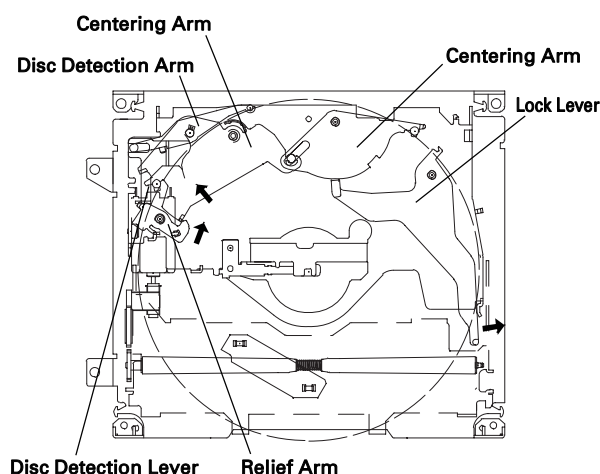


Fig.20 : POWER SUPPLY AND LOADING SECTION

2. MECHANISM DESCRIPTIONS

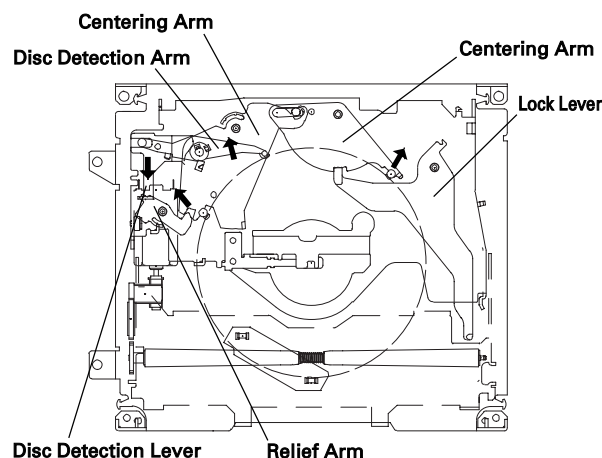
● Loading Operation (when a 12 cm disc is used)

1. Insert a 12 cm disc (the sensor turns on the motor revolution).
2. The disc pushes the Lock Lever in, thereby resetting the lock currently applied to the Centering Arms.
3. The disc further pushes the Centering Arms in.
4. The right side and left side arms are engaged to perform centering of the disc.
5. The disc pushes the Disc Detection Arm in, thereby pushing the Disc Detection Lever forward.
6. Clamping action retracts the Disc Detection Lever toward forward side, thereby rotating the Relief Arm.
7. The Relief Arm further pushes the Centering Arm in, thus detaching it from the disc.



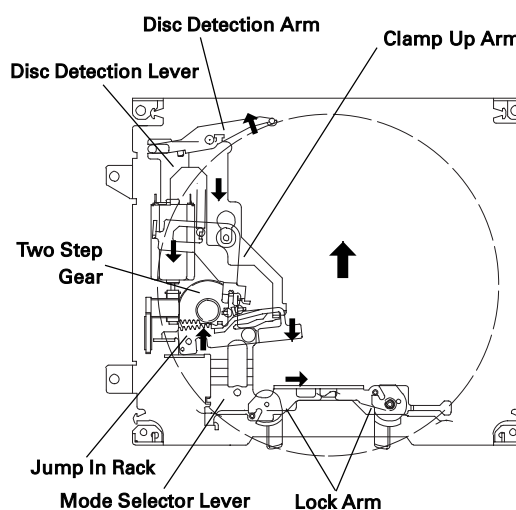
● Loading Operation (when a 8 cm disc is used)

1. Insert an 8 cm disc (the sensor turns on the motor revolution).
2. The disc does not contact against the Lock Lever, thus centering of the disc is performed by the Centering Arm being locked.
3. When the right side slot is used, the lock currently applied to the Centering Arm remains turned on even if the disc may touch the Lock Lever because the disc leaves the lever before it reaches the Centering Arm.
4. Succeeding procedures are the same as that for 12 cm discs.



● Clamping Operation

1. Insert a disc.
2. The Detection Arm pushed forward by the Detection Lever turns on rotation of the Jump In Rack.
3. The Jump In Rack then engages with the Two Step Gear and moves toward right.
4. At the same time, the Mode Selector Lever connected to the Jump In Rack starts moving toward right, thereby rotating the Lock Arm and resetting the mechanical lock. The Clamp Up Arm too is rotated by the above action and, thus, the Clamp Up Arm now being lifted by shape of the cam of the Clamp Arm is lowered. And, the Guide Arm is also moved down because of shape of the cam of the Mode Selector Lever.
5. By use of the cam shape, the Jump In Rack being moved toward right retracts the Disc Detection Lever in forward direction, thereby turning on rotation of the Relief Arm.

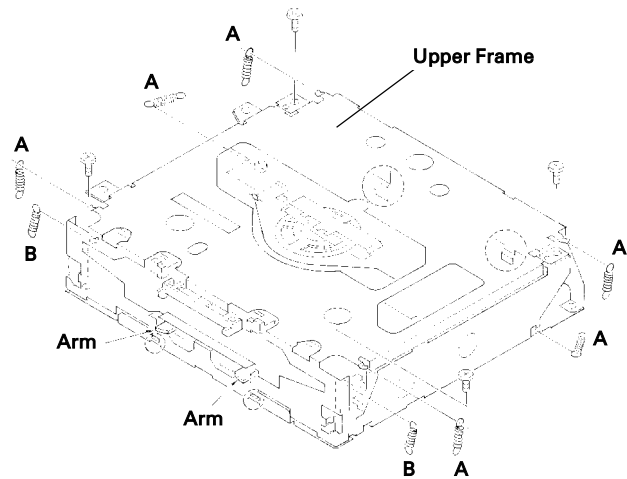


MC-Service

3. DISASSEMBLY

● Removing the Upper Frame

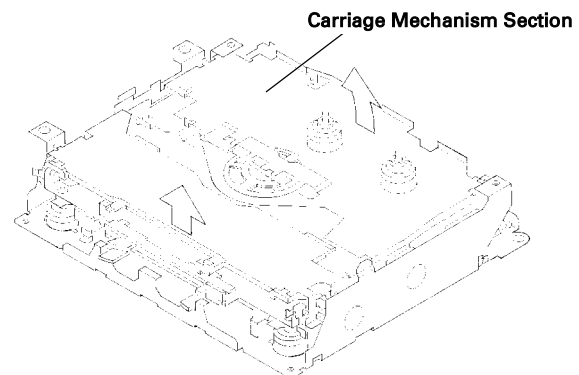
1. Remove six Springs A, two Springs B and four Screws.
2. Remove two Tabs situated on rear side of the Upper Frame, remove two Arms on the front side, then remove two Tabs on the front side.



● Removing the Carriage Mechanism

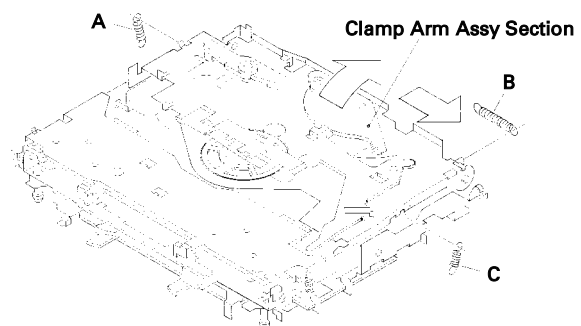
1. Disengage the Carriage Mechanism from the two dampers situated in the front side by driving it up, then disengage and remove the mechanism from the two dampers by driving it up aslant into front side direction.

Note : When assembling the Carriage Mechanism, coat the dampers with alcohol prior to the assembly.



● Removing the Clamp Arm Assy

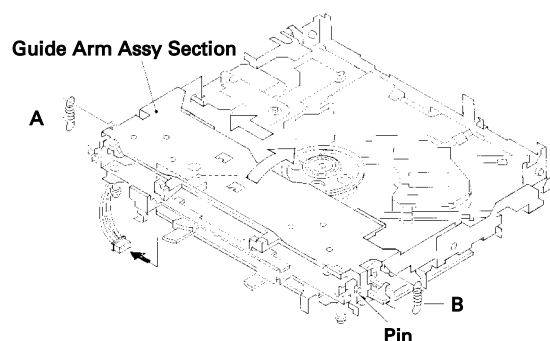
1. Remove a Spring A, a B and a Spring C.
2. Drive the Clamp Arm Assy up into rear side direction, then disengage the arm from its current position. Finally, drive the assembly approximately 45 degrees upward, then slide the assembly toward right side to remove it.



● Removing the Guide Arm Assy

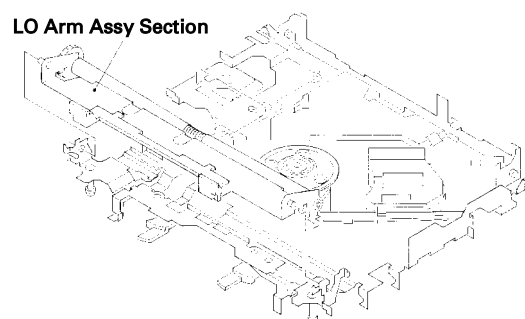
1. Remove a connector, a spring A and B
2. Drive the Guide Arm Assy up aslant into rear side direction, then remove it from a Pin. Finally, drive the assembly approximately 45 degrees upward, then slide the assembly toward left side to remove it.

Note : When assembling the guide arm assembly, route the cord inside the assembly. In this operation, care must be exercised so that cord may be caught by the gear.



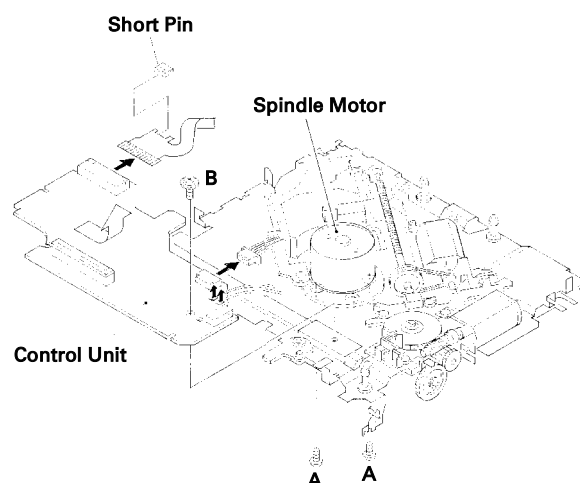
● Removing the LO Arm Assy

1. Remove two Pins to dismount the LO Arm Assy.



● Removing the Control Unit and the Spindle Motor

1. Remove from the connector after mounting the short pin on the flexible PCB of the pickup unit.
2. Remove two Soldered joints, then remove two Screws A.
3. Remove two connectors and a Screw B.
4. Disengage the Control Unit from two Tabs, then dismount the unit by sliding it toward left.
5. Dismount the Spindle Motor.

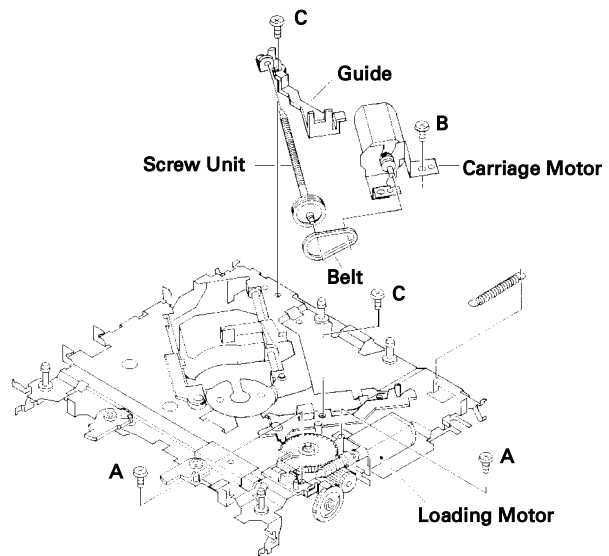


CX-916

● Removing the Loading Motor and Carriage Motor

1. Remove the Spring and two Screws A.
2. Dismount the Loading Motor.
3. Remove the Belt, a Screw B, two Screws C, a Guide and a Screw Unit.
4. Dismount the Carriage Motor.

Note : When assembling the Belt, use care so that it may not be contaminated by grease.



● Removing the Pickup Unit

1. Remove two Screws and a Shaft.
2. Dismount the Pickup Unit.

